

POPULAR Computing WEEKLY

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Vol 4 No 32

Atari pressure may force Sinclair into PCW launch

BOTH a new Sinclair 128K Spectrum model and Atari's 280ST now look likely to be shown for the first time in the UK at this year's *Personal Computer World* show in September.

Sinclair's 128K micro (see *Popular Computing Weekly*,

May 16) is thought to be priced between £175 and £200 and be based on technology developed in conjunction with Timex US for its TS2000 micro, launched in the US over two years ago.

Atari's 16-bit 280ST model features a built-in disc drive,

is expected to cost around £360 and should be in the shops in October.

The Spectrum 128K will be software compatible with the existing Spectrum and Spectrum Plus models, yet offer a number of additional features.

It has 128K Ram, bank-switched in two blocks, with a facility for further expansion, and is thought to have built-in

three-channel sound using the AY38912 sound chip, three additional display modes including a virtual screen facility, high-resolution display and 64-column text mode, built-in joystick ports and the ability to control an 80-column printer.

The Spectrum 128K is expected to be in the shops in late-September or early October. **cont on page 4 ▶**

Support grows for new 16-bit micros

BOTH COMMODORE and Atari are working hard to ensure that their new 68000-based machines, the Amiga and ST, do not suffer from lack of software at launch.

Commodore-Amiga has announced that around 50 titles

for the Amiga should be available by the end of the year in the US. Some of these will be marketed under the Commodore-Amiga name, but many are in development from third-party software companies. As many of these titles as possible will be brought to this country for Amiga's UK launch at the beginning of 1986.



possible will be brought to this country for Amiga's UK launch at the beginning of 1986.

Atari, meanwhile, has delivered over 100 development 820STs to software houses, and hopes that up to 80 companies will exhibit ST software at September's **cont. page 4 ▶**

◀ New Amiga



SORCERY PLUS, the enhanced version of Virgin's acclaimed Amstrad title *Sorcery*, will soon be available on disc under the Amsoft Gold label, priced at £13.95.

Sorcery Plus comprises the original *Sorcery*, with extra screens incorporated, and 35 further screens making up a second part to the game.

In the new part, you find yourself in the necromancer's

domain, and must kill him with kindness - surrounding him with hearts found in the screens.

Sorcery Plus is so far the only non US Gold title on Amsoft Gold - the other games scheduled being *Beachhead*, *Raid over Moscow*, *Bruce Lee*, *Zaxxon*, *Buck Rogers*, *Congo Bongo*, *Tap-er*, *Spy Hunter* and *Up and Down*.

INSIDE ▶ DK'TRONICS AMSTRAD LIGHT PEN ▶ Q-COM MODEM FOR QL

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EDITORIAL

Who, eighteen months ago, would have put money on Amstrad to make a go of its entry into the home micro market?

Lynx and Dragon had gone and Oric was having problems. Sinclair had never looked stronger and Commodore was claiming most of what was left.

Having created the whole micro circus single-handedly four years earlier Sinclair had always forced the pace and when Amstrad announced that its micro would be Z80-based it seemed doomed to failure. The 68000 revolution was just around the corner.

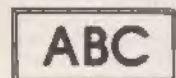
That that revolution didn't happen must also be laid at Sinclair's door. For some reason Sinclair took fright and eighteen months before any of his competitors – and four or five months too soon – he launched the QL. For whatever reason – the hardware design, the operating firmware, the teething troubles – the QL never performed as any Quantum Leap should. And because of that he let in Amstrad, which grasped the opportunity with both hands.

The Spectrum Plus may have been the "first product of Sinclair The Marketing Company". But it was also a weak effort. Instead, Sinclair should have launched the machine it now may release this autumn – the Spectrum 128K. All the work had already been done. The Timex 2000 machine – the unsuccessful American version of the Spectrum – had bank-switching required for the 128K, a three-channel sound chip and higher resolution graphics. But instead we got the Spectrum Plus. The mistake was a costly one for Sir Clive.

Now with Sinclair at an all-time low, Amstrad is on a high. So far Amstrad has shied away from meeting Sinclair head-on, but it must now be looking to compete directly with the Spectrum. It wouldn't take much for Amstrad to produce a version of its CPC 464 without monitor or cassette player at a price that Sinclair would now find very hard to match.

For almost a year now, Sinclair has been following rather than leading.

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Computer Trade Association Magazine of the Year

Firebird set to enter US market

FIREBIRD, British Telecom's games software publishing arm, may enter the American software market.

"We have conducted extensive research on the US market, and we are looking at the possibility of opening an office in the New York area," said Firebird's Herbert Wright.

If Firebird goes ahead with its plan it will become only the fourth British software company to have a US office. Of the others - Mastertronic, Quicksilver and Softek - only Mastertronic has made any real impact.

Firebird is also to publish games for the new US micros, the Atari 820ST and Commodore Amiga. The company

has begun development of an arcade-style title for the new machines. With the working title of *Star Glider* the game is rather like *Elite* but without the trading aspect and will feature fully three-dimensional images in colour, rather than line vector drawings.

● Meanwhile, the conver-

sions of *Ultimate's Sabre Wulf* and *Knight Lore* for the Commodore 64, for which Firebird licensed the rights earlier this year, are nearly finished. "We are hoping to have them out within this month," confirmed Herbert, "but that's not 100 per cent definite - we want to get Ultimate's seal of approval on the conversion work."

Amiga and ST support

◀ continued from page 1

Personal Computer World show.

The Amiga packages range from entertainment to languages and business packages.

Infocom hopes its Amiga titles will be ready next month, including the *Zork* trilogy, *Suspect*, *Deadlines*, *Planetfall*, *Suspended* and *The Hitchhiker's Guide to the Galaxy*.

Also in the entertainment field, Electronic Arts is converting its range.

Some programs are designed specially to take advantage of the Amiga's graphic and sound capabilities. Cherry Lane Technologies has written *Harmony*, a musical accompaniment package, and has *Scorewriter* a musical score printing package in development for January 1988. *Musicraft* from Everyway will turn the Amiga into a four-voice synthesiser and sequencer when it is launched in October.

The Island Graphics Corporation has produced *Presentationcraft*, a business graphics package intended to be particularly useful for business presentations, *Moviecraft* an animation package, and *Graphicraft* a painting and art program.

However, Amiga software is not going to be cheap. "I would think that prices will be in the region of between \$40 (£30) and \$150 (£110)," said a Commodore-Amiga spokesman.

For the ST machines, Atari is planning a large display at

Amstrad to release comms interface

AMSTRAD is to release an RS232 serial interface add-on for its CPC micros which will enable them to be easily linked up to a modem.

The new peripheral will sell for around £80, and will work on the CPC464, CPC664 and CPC6128.

It will be launched in "a couple of weeks", an Amstrad spokesperson said.

Ocean plans range of business titles

OCEAN is likely to be publishing "cheap and cheerful" business software, says managing director David Ward.

The decision is a departure for the company which - along with its other off-shoots *Imagine* and *US Gold* - has so far only published entertainment titles.

"Now that there are retail chains like First Computer around which cater speci-

cally for business users, there is an opening into the market for us," commented David Ward.

"We'll probably be launching a range of CP/M material first, and then license them in the States," he suggested. Interestingly, he added that he was thinking about CP/M games as well as straight business software - "I see a cross-over," he said.

Atari 260ST and Spectrum 128K

◀ continued from page 1

A Sinclair spokesman denied that any new Sinclair model would be previewed

the *Personal Computer World* show with software houses invited to show their ST software as part of Atari's stand.

Firebird, Ocean, Talent Computer Systems and Metacomco are among the companies planning to accept Atari's invitation.

The list of companies working on ST software now includes Llamasoft, Mirrorsoft, English Software, GST, Intelligent, Microdeal and Softek.

"The S20ST will have a wider range of software than any other micro at launch," claimed Rob Harding of Atari UK.

in September. "We will be showing the QL and its latest software and the Spectrum Plus pack, but I'm not aware of any new products being shown," he said.

Atari's 260ST model, to be shown in this country for the first time at the show, is the company's 256K version of its 88000-based ST range, featuring a built-in 3½ inch disc drive (see *Popular Computing Weekly*, June 4).

The US price for the model has been fixed at \$499.

"We will be showing both the 260ST and our CD Rom player at the show," confirmed Rob Harding, Atari UK's sales and marketing manager.

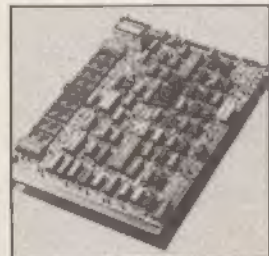
"We've not yet finally decided which version of the 260ST, the stand alone model or the one with a built-in disc drive, to put out, but I suspect it'll be the built-in drive version that will appear. We're hoping to launch the CD Rom player here before the year end."

Relaunch for the Nascom 2

ONE OF the earliest home computers ever to be produced in this country - the Nascom 2 - has been relaunched.

The Nascom was one of the computer industry's first casualties, but the original micro in kit-form first went into production even before the Sinclair ZX80.

Nascom 2 is now being offered in board-form only, al-



though manufacturer Lucas Control Systems is offering additional memory, graphics controllers, and hard and floppy disc controllers as extras.

The basic board costs £310. Details from Lucas at Welton Road, Wedgcock Industrial Estate, Warwick CV34 5PZ (0926 497733).

Greatest hits tape released by Virgin

VIRGIN is to release a compilation of six best-selling games on one cassette this month, entitled *Now Games*.

"We've taken a leaf out of our record company's sleeve, and produced a sort of software hot hits," explained Nick Alexander, Virgin Games' general manager.

The six titles on *Now Games* are *Brian Bloodaxe* (The Edge), *Lords of Midnight* (Beyond), *Strangeloop* and *Falcon Patrol II* (Virgin),



Virgin boss Nick Alexander

Arabian Nights (Interceptor) and *Everyone's Wally* (Mikro-Gen).

The package will be available for both the Spectrum

and Commodore 64 and will retail for £8.95.

"Quite a few companies are working on compilations at



Strangeloop

the moment," said Nick Alexander. "I think after seeing the success of *Soft Aid*, we were convinced that compilations could be popular, although obviously *Soft Aid* was a special case."

The individual companies will each get royalties on sales of *Now Games*, and Virgin hopes to bring out a series of compilation tapes from various companies embracing various themes.

Budget titles dip below £1

BUDGET software prices are continuing to fall with a new range being released - costing only 99 pence.

Central Solutions has released four titles at that price for the Spectrum.

Crystal Quest is a text-only adventure, *A Tangled Tale* is

a graphic adventure and *Valley of the Dead* and *Devils Descent* are both arcade-style games.

Eleven further text-adventures are planned by Central Solutions for release in August, also at 99 pence, and a Q&A adventure at £2.99.

Details from Central Solutions, 500 Chesham House, 150 Regent Street, London W1 (01-624 1389).

Super titles for Christmas

BEYOND HAS announced five new titles to be out by Christmas, including the much heralded *Superman*, licensed from US firm First Star.

Superman will be an arcade-style game with the player as Superman fighting against his arch enemy Darkseid. The game will feature sophisticated animation and be released for Commodore, Atari, Amstrad and Spectrum machines.

The other titles include *Nexus*, which is the name of both game and label, launched as a range of titles written by Paul Voysey and

Tayo Olowu, authors of *Psytron* and *Psi Warrior*. *Nexus* is a graphic adventure for the Spectrum and C64.

Iron Heroes, a futuristic gladiator fight by the Shadowfire team Denton Designs, will be on the Monolith label, for the C64 and Spectrum, and *Enigmaforce* and *Eye of the Moon* on Beyond. The latter is the final part of Mike Singleton's *Lords of Midnight* trilogy.

Beyond also hopes to bundle the full trilogy as one package, although the details have yet to be finalised. All the games will cost £9.95.

BORED with the BBC MICRO?

A strong and very successful software house who until now has concentrated on BBC application programs, is expanding to write for the new generation of machines.

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Annoying

I've been reading your magazine for a month now and find the style of your reviews annoying.

Would reviewers kindly remember that we readers are not interested in their opinions, but in their observations from which to formulate our own opinions.

*N Jealous
18 Arthur Street
Cardiff*

It is difficult to make sensible observations about a program without offering some kind of opinion. Personally, I've always felt that the kind of reviews which don't nail their opinions firmly to the mast usually aren't worth reading.

Mental effort

Your magazine has from time to time printed letters deprecating those who use their home computers for playing games. H G Jones' letter (July 25 issue) is a par-

ticularly reprehensible example.

There is nothing inherently unhealthy in playing computer games any more than there is in reading, watching television, listening to music, seeing a film or play: need I go on? All these activities can be entertaining, enlightening and, frequently, educational. Modern computer games have as close an affinity to Snakes & Ladders, Ludo or Mousetrap as does the Post Office Tower to a mud hut. The board games that I know of which require a serious mental effort can be counted on the fingers of both hands. The only skill involved in the games quoted by H Jones is the ability to count from one to six: they are, in fact, games of almost pure chance. Just try to solve a game such as *Knight Lore* with a similar amount of skill!

No, there is nothing clever about punching a few keys to play a game (I press mine, I do not 'punch', 'hit' or 'strike' - the keyboard lasts longer). The cleverness with many computer games, particularly

the modern adventures and arcade adventures, lies in determining the object of pressing the keys, which keys to press and when during the game to press them. I find that playing *Boulder Dash* requires more mental effort than does playing *Reversi*, my favourite board game.

I fail completely to understand why a computer game should be expected to contribute to the computing knowledge of the player. Most are not designed for that purpose, they are designed to entertain and that, I find, they do very well.

I'll stick to zapping ram-paging toilet seats.

*W Thompson
2 Sandon Close
Sandy
Beds*

Extra command

Those readers who possess the Amstrad DD-1 disc drive may be interested to know that I have discovered a sixth CP/M direct console command. The command is 'User N' where N is the num-



"It's a 4M bank-switched machine and I've forgotten which block I put my 48K program in!"

ber of the user that you wish to enter (between 0 and 15).

The DD-1 user manual states that there are only five direct console commands (Save, Dir, Era, Ren and Type). This undocumented command may be of use to some Amstrad disc users.

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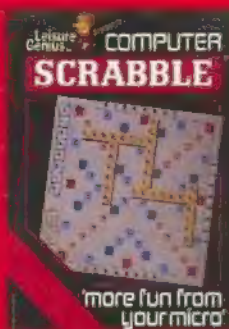
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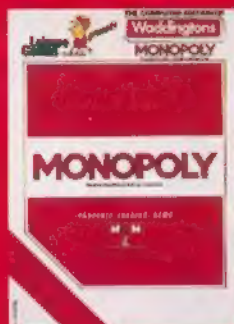
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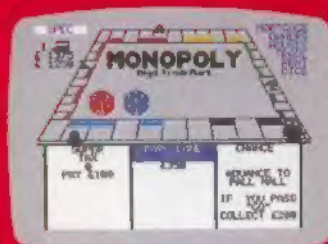


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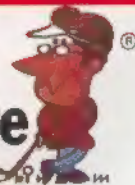
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PCW

Software Reviews



Burnt up

Program *Desert Burner Micro* Spectrum 48K **Price** £2.50
Supplier Creative Sparks, Thompson House, 296 Farnborough Road, Farnborough, Hants.

This is another in the Sparklers budget software range and involves guiding a motorbike along a scrolling road, jumping over lorries, cars, trees and pits, whilst avoiding helicopters which are out to bomb the bike.

Fortunately, on the front of the bike is a fast action cannon which despatches the helicopter with gay abandon.

As the sun in the top right of the screen slowly sinks, day turns into night and the whole process continues, until you finally deliver the mandatory 'secret plans' to a band of freedom fighters.

The trouble with this game is its lack of variety. It becomes boring jumping over the same things all the time.

Even allowing for the £2.50 price, it is a disappointment.

Andy Moss



Random race

Program *Pole Position Micro* Spectrum 48K **Price** £7.95
Supplier US Gold, Unit 10, Parkway Industrial Centre, Heneage Street, Birmingham B7.

This is another nail in the coffin for those who support the theory that a hit game on one machine will be equally as good once converted to another.

My fears were confirmed by finding the Commodore screen shot on the back of the Spectrum cassette box!

Once loaded, it is soon apparent why. Clearly, this is a sad version of that popular arcade classic that was a hit on the Commodore. All the features of the original are

here, the pre-qualifying phase, the race itself, best times and high score tables, etc, but the quality of the programming leaves a lot to be desired. The movement is jerky and the car has no 'feel' to it. As for the other competitors' cars, apart from suffering severe attribute problems, they just appear at random and are passed with ease, hardly the "nerve shattering danger" that was promised on the inlay.

The game may have been good a couple of years back, but nowadays we've all seen the graphics that the Spectrum is capable of (ie, *Chequered Flag*) and this just doesn't do it justice. It's about as entertaining as changing a flat tyre in a storm.

Andy Moss



All at sea

Program *North Sea Bullion Adventure Micro* Amstrad **Price** £3.95 **Supplier** Kuma Computers, Pangbourne, Berks.

I've always thought that a lot of adventure software is overpriced - there are of course exceptions but often the quality of programming and the amount of development time needed fall far below that of the leading arcade games - so it is a



welcome development to see Kuma producing a pair of adventures as the first releases on their budget range.

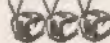
Shadow of the Bear and *Bullion Adventure* are both written in Basic, both hybrid adventure/strategy games and both written by the same people. I looked at *Bullion Adventure* and found it a reason-

ably entertaining game. The idea is to locate and loot a shipwrecked boat and to do this involves stocking your ship with your choice of equipment, navigating perilous straits etc. Control of movement is via the cursor keys, and whilst there is text input this is largely limited to a very few options.

Although the strategy elements may give it more potential for long-term play than some adventures, the programming has some unnecessary weak points. It desperately needed someone to sit down and play the thing for a while to produce a list of refinements. The instructions are on screen for ages, why no 'press any key' option? The graphics, whilst large and colourful, start to grate when they redraw after every move, even when the picture is the same. The list of things to buy include 'fuel' - type *Buy Fuel*, it says you can't - it's only when you type *Buy Fuel Oil* that it lets you. The game also suffers from over-use of the Random function - too many sudden disasters for my liking.

A few niggles, but not bad for the price.

Tony Kendle



Time travel

Program *The Amulet* Price £2.80 **Micro** Commodore 64 **Supplier** Sentinent Software, Branch House, 18 Branch Road, Armley, Leeds LS12 3AQ.

An unusual marketing policy, this - on one side of the tape is the Spectrum version, on the other is the Commodore program. I'm sure we'll see a lot more of this in the future as companies try to economise.

The object of *The Amulet* is to travel through time in an attempt to locate the seven parts of the shattered amulet. With this in mind, you approach a river. On the bank is

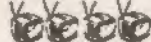
a fishing rod. Let's try a spot of fishing. Well, lo and behold! Hooked on the end of the line is a broken, dirty old amulet. After a bit of thinking, you decide to clean it. Before you can say *Popular Computing Weekly*, you are whisked away across the time streams into another distant location and time. How's that for progress?

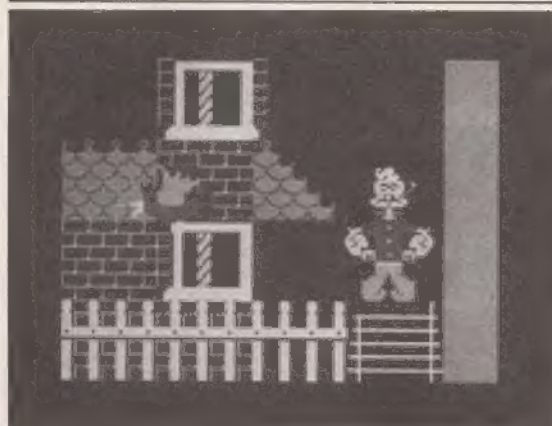
The Amulet is a traditional, text-only adventure. While the descriptions aren't as detailed and atmospheric as, say, Level Nine's adventures, the author seems to make up for this with plenty of creative flair. On your travels you will come across many weird and wonderful things ranging from giant insects to a farmhouse containing garlic, onions and a book about mon-

keys. For a change, the adventure doesn't involve lots of monster-bashing, blood and violence (unlike some adventures where you have to kill two orcs before breakfast). The computer also appears to be rather witty and cryptic in places. (For

example, it points out what a wally you look carrying a fishing rod across the desert.) In conclusion, a decent adventure at a very reasonable price.

Tom Hussey





Cartoons

Program Popeye Micro Spectrum 48K Price £5.95 Supplier DK Tronics, Unit 2, Shire Hill Industrial Estate, Saffron Walden, Essex.

Did you know that there's a statue to Popeye in the USA, erected by the Spinach Growers of America?

Such is the power of the perennial cartoon jack tar in his constant battle for the heart of Olive Oyl against bullying Bluto.

His computer debut was announced some time ago and now appears from DK Tronics who have taken the arcade adventure path, but instead of tiny figures and lots of platforms they've gone for characters who are almost half the screen tall. Although their movement is more jerky than in *Dun Darach* they boast solid colour and avoid most

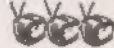
attribute problems. It's all very much like watching a cartoon film.

The 'plot' is suitably faithful too. Popeye has to collect hearts which he takes to Olive who kisses him wildly, so increasing his score. There are also keys to unlock doors (but which particular doors?) and spinach (natch!) which revives our hero when he bumps into Bluto or any other enemy who will bop him.

Now the inevitable 'but'. The trade off for the large characters is lack of screen space. There are several levels of depth but no real way of judging which plane Bluto, et al, are in. Collisions are all too frequent and you'll need all your strategically conserved spinach for situations where KO's are inevitable.

So unless I've missed something this plagues an otherwise interesting adaptation of a cartoon character. Arf, Arf!

John Minson



More Willy

Program Jet Set Willy II Micro Spectrum 48K Price £6.95 Supplier Software Projects, Bearbrand Complex, Allerton Road, Wootton, Liverpool 28 7SF.

So what have we here? Not just another clone of Manic Matthew's Moneyspinner but the second coming of Surbiton's most famous (subterranean) son, millionaire Miner Willy.

Firstly feelings of déjà vu,

because far from being an all new game this is in fact an expansion of the indisputable classic. Here they are again, all those jumping, timing and collecting problems we've grown to know and tear our hair at... maybe even beat by this time. But the mansion has been extended to include previously unreachable areas and even a space ship, which is the nearest piece of shuttle cock (and bull) I've seen all week.

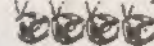
Well, it was heaped with praise in its time but the best of the multitude of imitators have actually added to its

charms, so how does JSW rate today? I'm pleased to report that it's still as maddeningly addictive as ever. Of course whether the new version is worth purchasing is up to you. The (non-Smith) additions seem neat enough but do they really warrant the purchase of a new game?

If you don't already own an

original (where have you been?) or your copy's worn out, I'd say buy. Otherwise there are lots of new, equally worthy programs. Still, there are probably hundreds of you waiting to work out the Pokes for this new version!

John Minson



Body blows

Program Frank Bruno's Boxing Price £6.95 Micro Spectrum 48K Supplier Elite Systems Limited, Anchor House, Anchor Road, Aldridge, Walsall, West Midlands.

Mmuf nngf rgrf... sorry, I'll take my gum shield out! Well, no sooner has your heavyweight reviewer taken on Gremelin's Rocco, which went down in two, than a bout with Frank Bruno arrives. So it's on with the gloves, seconds out and...

Round one. Elite's man comes out fighting and he's much more versatile. He knows, and uses, head and body blows, left and right, dodges to either side, ducks and, when the opponent is almost dead on his feet, delivers a neat uppercut that knocks him somewhere into the middle of next week.

Round two. He's not looking so good now. In fact the animated graphics are less good than Rocco but apart

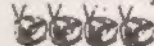
from the odd confusing aspect they do the job.

Round three. One opponent vanquished but seven more wait to be Loaded using individual access codes. The result is that not only do they look different (unlike Rocco) but they also fight differently. The Canadian Crusher is a dumb bruiser but Fling Long Chop from Japan is a niftier character, aiming deadly karate kicks.



The bell. I soon got used to the eight keys used and found the speedy pounding involved most satisfying. With its extra options and variety of fights Frank Bruno is current champ.

John Minson



Compilation

Program Pascal 80 Price £39.99 Micro Amstrad plus disc and CP/M/Tatung Einstein Supplier HiSoft, 180 High Street North, Dunstable LU6 1AT.

Program Pascal Price £29.99 Micro Amstrad Supplier Amsoft, Brentwood House, 169 Kings Road, Brentwood, Essex.

Through CP/M, Amstrad owners have theoretically been given access to at least a dozen attempts at a Pascal compiler including one from HiSoft which wrote the official

Amsoft Pascal.

Aside from the price, what is there to choose between them?

The Pascal 80 implementation is not only cheap for a disc CP/M version, but it is also the closest to the standard, which is probably a good thing for educational use.

On the other hand, for those who are making their first steps up from Basic, Amsoft's Pascal is probably the best bet since you don't have to accommodate the idiosyncrasies of the CP/M disc operating system at the same time. It has also been tailored to make it as easy as possible to achieve similar effects to those available from Basic -

sound, graphics, interrupts etc. While you also get extras like turtle graphic procedures, it is more limited in other areas - notably the file handling which is better on Pascal 80. Only character files can be used and they are accessed serially, not randomly. Graphics and sound are of course not easily available from CP/M, but again HiSoft have provided some predefined routines that expand on the defined core language, eg. *Peek*, *Poke*, *Addr*, and some mathematical functions.

Amsoft Pascal stands out for its better hardware interface. Conversely Pascal 80 can be used to produce running CP/M Com files without the need to learn anything about the appropriate Bdos calls for printing to screen, etc.

Amsoft Pascal has a line editor similar to Basic with some additional commands

whilst the excellent Wordstar-compatible ED80, familiar to users of *Devpac* 80, is provided with the CP/M disc. You can of course use separate editors or word processors if you wish. HiSoft's documentation is of a high standard but tends to be of reference value rather than pampering to the beginner. Amsoft's version is similar but slightly better in that respect.

In both cases you would do well to look for one of the 'teach yourself' books recommended.

■ If you are looking for an Amstrad version of Pascal either of these packages could be a good choice - the Amsoft version is a bit easier to get to grips with, though.

Tony Kendle



Road runner

Program *The Great American Road Race* **Micro** Commodore 64 **Price** £9.99 **Supplier** Activision, 15 Harley House, Marylebone Road, London NW1.

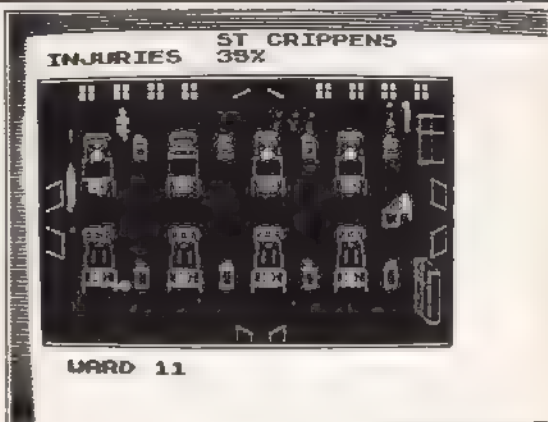
At first glance this race game is disappointing, with a seemingly sparse screen display and chunky graphics but, as you progress into the game, it grows into a veritable gem.

The idea is to road race across America from east to west using one of four different routes, planning the quickest way city by city for each. You have to take into account weather conditions,

time of day, rush hour traffic, police speed traps, while keeping a check on petrol and engine revs. Driving is the usual joystick left/right, with up and down for changing gear, and the track is the standard 3D Pole Position style layout.

Although the other cars on the road are rather similar, it doesn't matter as your attention is focused on the changing landscape, day turning into night and the approaching skyline of the cities.

This is where the charm of the game comes into its own as each city has its own landmark, for example San Francisco's Golden Gate Bridge. The times of eight pre-programmed drivers are already fixed and these are



Health risk

Program *St Crippens* **Micro** Spectrum 48K **Price** £2.50 **Supplier** Creative Sparks, Thompson House, 298 Farnborough Road, Farnborough, Hants.

What a funny game this is. Here you are, cast as a patient interned in the infamous St Crippens hospital after a minor accident.

Your aim is to escape as soon as possible, but of course it is not easy. Not only are you pursued by doctors, nurses, and ambulancemen, but hazards such as bed pans,

ladders and the odd disease, all there to hinder your exodus.

This is basically a Pac-man-type maze game but with many different mazes comprising of hospital wards. You have to manoeuvre your little figure around the various beds and furniture, through such obscure places as the 'Tropical Diseases Ward' and 'the games room' etc. A nice touch is, once up to 80% damage, your figure hobbles around on crutches.

The graphics are very simple but nicely drawn and, above all, sometimes funny.

This game is a bundle of fun and great value for money.

Andy Moss



Croak croak

Program *Crystal Frog* **Micro** Spectrum 48K **Price** £2.99 **Supplier** Sentient Software, Branch House, 18 Branch Road, Armley, Leeds, West Yorkshire LS12 3AQ.

The background to *Crystal Frog* is tense: find the crystal frog, visit all the locations and score 100%.

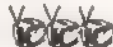
Well, it is a budget adventure, but neglecting to mention that it's been Quill-ed is

rather naughty.

With that off my chest I'm pleased to report that this particular quest doesn't stint on words. From the very first location (a clearing in a grassy field on a summer's day with a cloudless sky with circling birds above) the eye of the imagination is most pleasantly stimulated.

A traditional, not desperately original but atmospheric adventure at a price which won't leave a frog in the throat.

John Minson



your targets to beat. However, new times can be added from tape. Sound is used well and the graphics are smooth and effective. An addictive game with a style all of its own

which lets you tour America from your armchair.

Another winner from Activision.

Andy Moss



Communicator

Hardware QCom Modem Micro QL
Price £219.85 (Q-Connect plus software £89.95; Q-mod £79.95; Q-call £49.95 - units available separately)
Supplier Tandata Marketing, Albert Road North, Malvern, Worcs (06845 68421)

Sinclair has not had a good year so far but - at long last - there is a communications package available for QL owners who wish to link-up to the outside world.

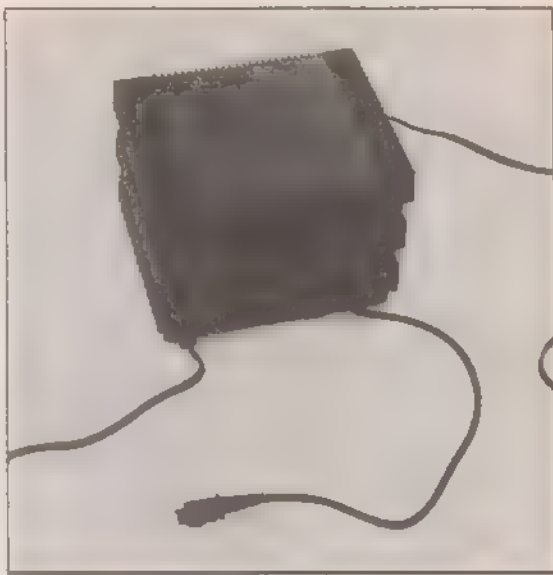
When OEL went bust a few months ago, the company's planned QL communications unit went out of the window. But Tandata took over the project to the relief of all concerned.

According to Tandata, orders left over from OEL's bankruptcy are being fulfilled and the package is now available to others, direct from Tandata Marketing in Malvern.

Tandata's package actually consists of three separate units: Q-Connect, Q-Call and Q-Mod. Q-Mod is the modem enabling communications at 1200/75 baud

(full duplex) and 1200/1200 baud (half duplex) for QL to QL communications. The 1200/75 baud operation is for accessing databases such as Prestel and VT-100 facilities such as Telecom Gold. Q-Call is an auto-dial/auto-answer unit. Auto-answer is chiefly for QL to QL communications and the automatic transfer of files and other data.

Q-Connect is the key to the system. It is an intelligent interface supported by an extensive software package loaded into the QL by microdrive. Q-Connect operates between 75 and 9600 baud and will support most asynchronous modems - a fact



which should go a long way to satisfying those sceptical QL owners. Q-Mod's somewhat limited range of communications. The software is impressive and contains a wide range of features including telephone director, a mailbox menu, a CET telesoftware down-loader, Load/Save facilities, file transmission and data encoding/decoding features.

Q-Call and (if the buyer links Q-Connect to another modem) Q-Mod are optional but, when joined, form a compact unit offering just about all the facilities an up-to-the-minute "off-line" QL owner could wish for, at a total price of just over £200.

Each unit is designed in the QL-style and is made of the same black plastic. The three are linked in a neat stacking system with Q-Connect as the base and joined by vertical bus connectors. My only real criticism is - since the bus connectors are the only thing holding the three units together - there is a real danger of damage from slightly careless handling.

Tandata is actually the second company to put out a QL modem. Modem House has produced Bright Star, an intelligent modem which (for the moment) lacks an auto-dial facility, but has a wider range of communications and costs roughly the same - £178.95. The Q-Com package without Q-Call costs £169.90.

I have not had an opportunity to try the Modem House product so I can't make comparisons, but Tandata's Q-Com device functioned well and makes a very neat-looking addition to your QL.

Tandata has successfully rescued a package originally designed for the computer, and one which offers most owners all they need to link their silent QLs into the world's electronic information pool

Brian Beckett



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beginning machine code
on the commodore 64

a simple introduction for beginners

david lawrence & mark england

You don't have to have a wet towel wrapped round your head and a bottle of aspirin at your side to learn to program your Commodore 64 in machine code — there is an alternative method. By concentrating on simple concepts, and by explaining every step carefully, with plenty of examples, David Lawrence and Mark England show you to you in their book *Beginning Machine Code on the Commodore 64*.

Although it can be difficult to become fully proficient in machine code programming, each instruction, in itself, is relatively simple to understand. The authors are careful to bring out this in their approach, showing clearly and carefully what each instruction does and how it is used. Then, when you feel more confident as a machine code programmer, you can begin to construct more and more adventurous routines from a collection of the simple individual instructions.

David Lawrence and Mark England are experienced machine code programmers on the Commodore 64, being authors of *Machine Code Graphics and Sound for the Commodore 64* and *The Commodore 64 Machine Code Master*, but not so experienced that they have forgotten the pitfalls and confusing points that await the beginner.

So, if you are ready to take your first steps into the world of machine code programming on the C64, this is the book for you.

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Trapper

It's you against the Evil Kraalian on the CBM 64 -
written by ■ Beaven

Trapperr runs on a Commodore 64 with a joystick in Port One. The idea of the game being to trap the Evil Kraalian.

At the start of the game, a random maze is drawn, then the Kraalian appears, followed by a green man which you control.

The Kraalian will immediately bound around the maze in a berserk fashion - you must manouvre him into a three sided box, closing the gap with yourself. He then dies, and you are presented with

another, harder maze. . . this must be finished within a time limit, of course! Good luck!

Program Notes

Line No

10 - 54	Display title screen
55 - 87	Accept input
88	Read UD G data
89	Define Char ■ as space
90	Read UD G number data
91 - 151	Character data
205 - 218	Draw boxes round screen
230 - 245	Fill screen randomly with boxes

280 - 280	Display Kraalian
290 - 295	Display Player
300	Update time
310 - 385	Update Kraalian position
1000	Endgame check
1001 - 1030	New direction
1050	Choose random loop entry point
1070 - 1110	Direction choosing loop
9000 - 9070	Sound effect routine
6000 - 6040	Joystick input
6100 - 6420	Player movement
7000 - 7025	Completed level routine
8000 - 8060	End game




```

10 POKES3272,21:POKES3280,0:POKES3281,0:PRINT"*****"
20 PRINT"  M 1000  M  M  M  M  M  "
30 PRINT"  M 1000  M  M  M  M  M  M  "
40 PRINT"  M 1000  M  M  M  M  M  M  "
50 PRINT"  M 1000  M  M  M  M  M  M  M  "
51 PRINT"  M 1000  M  M  M  M  M  M  M  "
52 PRINT"*****"
53 PRINT"*****.BEAVEN"
54 PRINT"*****JOYSTICK OR KEYBOARD?"
55 GETAS:IFA="":THENS5
56 IFA="K"THENPRINT"*****HARD LUCK,IT ONLY WORKS
WITH JOYSTICK (PORT ONE)"
57 IFA="J"THENPRINT"*****INSERT JOYSTICK IN PORT
ONE"
66 FORT=0T087:READA:POKE14336+T,A:NEXT
67 FORT=0T07:POKE14336+T+8*32,0:NEXT
68 FORT=0T079:READA:POKE14336+T+8*48,A:NEXT
69 FORT=0T07:READY(T):NEXT
70 DATA126,219,219,255,255,189,195,126
75 DATA126,219,211,227,195,149,195,126
80 DATA70,129,0,0,1,0,128,38
85 DATA24,24,126,185,153,36,36,102
90 DATA0,234,75,74,74,74,0,0
95 DATA0,46,164,172,40,46,0,0
100 DATA0,0,16,0,0,16,0,0
101 DATA0,142,136,140,136,138,0,0
102 DATA0,139,138,83,82,35,0,0
103 DATA0,160,83,32,33,185,0,0
104 DATA0,0,0,0,0,0,0,0
105 DATA127,65,65,65,65,65,127,0
110 DATA8,8,8,8,8,8,0,0
115 DATA126,1,1,7,28,112,127,0
120 DATA126,1,1,31,1,1,126,0
125 DATA72,72,72,127,8,8,8,0
130 DATA127,64,64,126,1,1,126,0
135 DATA1,1,1,126,65,65,62,0
140 DATA127,1,1,2,2,4,4,0
145 DATA127,65,65,127,65,65,127,0
150 DATA63,65,65,63,1,1,1,0
151 DATA127,127,127,127,127,127,0
155 PRINT"J":POKES3272,31
156 REM *****
160 C=54272:N=1:SS=54272:Q=1528:W=0:15:E=INT(RND(1
)*4)+1:SC=0
200 Q=1528:W=0:15:PRINT"J":FORT=1064T01103:POKET,1
0:POKET+C,14:NEXT
205 FORT=1143T0203STEP40:POKET,10:POKET+C,14:NEXT
210 FORT=2022T01984STEP-1:POKET,10:POKET+C,14:NEXT
215 FORT=1944T01104STEP-40:POKET,10:POKET+C,14:NE
X
T
220 FORT=0T07:POKE14336+T+60,255
221 A=7:D=1:S=0:R=0:LQ=(227+T):HI=22+(T*2):WA=17:G
OSUB5000:FORH=1T050:NEXTH
222 NEXT
225 PRINT"*****"
230 FORT=1T0210-(N*20)
235 X=INT(RND(1)*960)+1
240 IFPEEK(1105+X)C32THEN235
245 POKE1105+X,10:POKE1105+X+C,14:NEXT
250 A=1:D=1:S=0:R=0:LQ=1:HI=10:WA=129:GOSUB5000
255 FORT=0T07:POKE14336+T+80,Y(T):NEXT
260 POKE0+C,10
265 FORT=2T08STEP-1
270 POKE0,T:FORH=1T0200:NEXTH
275 FORJ=1T08:A=0:D=0:S=3:R=0:LQ=INT(RND(1)*103)+1
:HI=INT(RND(1)*244)+1:WA=17
280 GOSUB5000:NEXTJ,T
285 POKES3+4,0:FORT=1T0100:NEXTT
290 A=1:D=1:S=1:R=1:WA=33:HI=19:LQ=10:GOSUB5000
295 POKEW,3:POKEW+C,5:FORH=1T0500:NEXT:FORT=55TOS
S
+24:POKET,0:NEXTT
299 TI="000000"
300 PRINT"*****",TAB(4):TI$:TAB(37):N:=PEEK(56321):IF
TI$="000100"THEN8000
310 ON E GOTO350,360,370,380
350 IFPEEK(Q-40)C32THEN1000
355 POKE0,32:Q=Q-40:POKE0,0:POKEQ+C,10:GOTO6000
360 IFPEEK(Q+40)C32THEN1000
365 POKE0,32:Q=Q+40:POKE0,0:POKEQ+C,10:GOTO6000
370 IFPEEK(Q-1)C32THEN1000
375 POKE0,32:Q=Q-1:POKE0,0:POKEQ+C,10:GOTO6000
380 IFPEEK(Q+1)C32THEN1000
385 POKE0,32:Q=Q+1:POKE0,0:POKEQ+C,10:GOTO6000
1000 IFTI$="000100"THEN8000
1001 IFPEEK(Q-40)=32THEN1050
1010 IFPEEK(Q-1)=32THEN1100
1020 IFPEEK(Q+40)=32THEN1050
1030 IFPEEK(Q+1)=32THEN1050
1040 GOTO7000
1050 E=INT(RND(1)*4)+1
1060 ON E GOTO1070,1080,1090,1100
1070 IFPEEK(Q-40)C32THEN1000
1075 POKE0,32:Q=Q-40:POKE0,0:POKEQ+C,10:GOTO6000
1080 IFPEEK(Q+40)C32THEN1000
1085 POKE0,32:Q=Q+40:POKE0,0:POKEQ+C,10:GOTO6000
1090 IFPEEK(Q-1)C32THEN1100
1095 POKE0,32:Q=Q-1:POKE0,0:POKEQ+C,10:GOTO6000
1100 IFPEEK(Q+1)C32THEN1100
1105 POKE0,32:Q=Q+1:POKE0,0:POKEQ+C,10:GOTO6000
1110 GOTO1070
5000 POKESS+4,0:D=A*16+D:SR=S*16+R
5010 POKES+24,15
5020 POKES+C,80
5030 POKES+7,SR
5040 POKESS+0,L0
5050 POKESS+1,H1
5060 POKESS+4,WA
5070 RETURN
5000 REM *****
6010 IFZ=254THENGOTO6100
6020 IFZ=253THENGOTO6200
6030 IFZ=25:THENGOTO6300
6040 IFZ=247THENGOTO6400
6050 GOTO3000
6100 IFPEEK(W-40)C32THEN300
6110 POKEW,32:W=W-40
6120 POKEW,3:POKEW+C,5:GOTO3000
6200 IFPEEK(W+40)C32THEN300
6210 POKEW,32:W=W+40
6220 POKEW,3:POKEW+C,5:GOTO3000
6300 IFPEEK(W-1)C32THEN300
6310 POKEW,32:W=W-1
6320 POKEW,3:POKEW+C,5:GOTO3000
6400 IFPEEK(W+1)C32THEN300
6410 POKEW,32:W=W+1
6420 POKEW,3:POKEW+C,5:GOTO3000
7000 FORK=100T0150
7001 A=1:D=1:S=0:R=1:WA=33:HI=K:LQ=K:GOSUB5000
7002 FORH=1T010:NEXTH
7003 A=5:D=5:S=5:R=5:HI=40:LQ=50:WA=33:GOSUB5000
7004 FORT=0T02
7005 POKE0,T:FORJ=1T0200:NEXTJ,T:FORJ=1T0200:NEXTJ
:POKES3+4,0:POKES3+24,0
7009 BO=1000*H:SC=SC+T1:SC=SC+BO:SC=INT(SC)
7010 PRINT"J":POKES3272,21:SC=SC+BO
7011 PRINT"*****WELL DONE, YOU HAVE 'TRAPPED' THE EVIL
KRALLIAN *****"
7013 PRINT" YOU GET A BONUS OF ",BO
7014 PRINT" WHICH MAKES A SCORE OF ",SC
7015 FORT=1T01000:NEXT:K=255
7025 PRINT"*****PRESS FIRE *****"
7050 IFPEEK(56321)
7055 IFA=200THENGOTO7000
7060 GOTO7050
7065 PRINT"J":POKES3272,31:N=N+1:GOTO200
8000 FORF=15T085STEP-1
8001 A=2:D=5:S=2:R=1:WA=129:HI=F:LQ=F:GOSUB5000:PO
KEW+C,F
8003 FORT=1T015:NEXTT,F
8004 PRINT"J":POKES3272,21
8005 PRINT"THE EVIL KRALLIAN HAS BEATEN YOU!"
8006 PRINT"WITH A SCORE OF ",SC:"PLUS A BONUS"
8007 PRINT"OF ",BO:" WHICH MAKES ",SC+BO," POINTS!"
8020 PRINT"*****DO YOU WANT ANOTHER GAME (Y/N)?"
8030 GETS:IFG$="":THEN8030
8040 IFG$="N"THENEND
8050 IFG$="Y"THEN8030
8060 PRINT"J":POKES3272,31:GOTO100

```

Getting a word in edgeways

More text compression techniques from the keyboard of Jeff Tullin

This week sees the publication of the Microsoft type 'squash' computer. As it stands, it won't run directly on any computer! It is written in such a way as to simply suggest what you should actually type. The syntax for representing Hex numbers, for instance, varies from machine to machine. So too does the command which lowers the 'Top Of Memory' pointer to allow machine code to be assembled safely above it. Even *Peek* and *Poke* can vary between micros, so it is up to you to arrange the program to suit your machine. This should not prove too hard. The 'dictionary' supplied here is smaller than last week's simply to save space, and you may wish to refer to the last section for a wider explanation.

Once the compactor has run (and this can take a long time - my latest game took over three hours to compress), the program will print some addresses on the screen, such as:-

Dictionary from &5200 TO &524C
Text occupies &524C TO &xyxy
Compressed by something %

BBC users, at least, can save the database as a block of memory by the command **save "text" 5200 xyxy*, and then disregard the compactor program entirely thereafter, and just **LOAD* in the block as required. What is important is to keep a record of the address of the start of the dictionary and the text.

But now on to the expander routines. This week, just the theory. We have already replaced common words and phrases by single numbers. What we need to do now is examine the compressed string, byte by byte, and print out normal letters unchanged, but replace the 'special' bytes by the correct keywords. So, in effect, what we must do is tell the computer: "In future, if you come across the code value of 136, instead of printing it, print the word 'HELLO' (or whatever). The same goes for code 137. If this code appears, print 'GOODBYE'". - and so on. Working through a list of codes like 65, 136, 66, 137, 67, the computer might thus print out: 'A HELLO B GOODBYE C'.

In addition, our expander routine will also begin a new line when it encounters a '#' symbol, and again when it finds a full stop. The full stop will itself signal that the next lower case letter should be made into a capital letter as the beginning of a sentence.

Figure 2 is the main flowchart for the expander, slightly simplified for clarity. For completeness, figure 1 is a flowchart for the small subroutine which will handle adding the capital letters required from time to time. Next week, the final program.

Fig 1

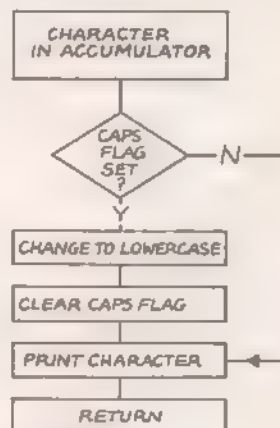
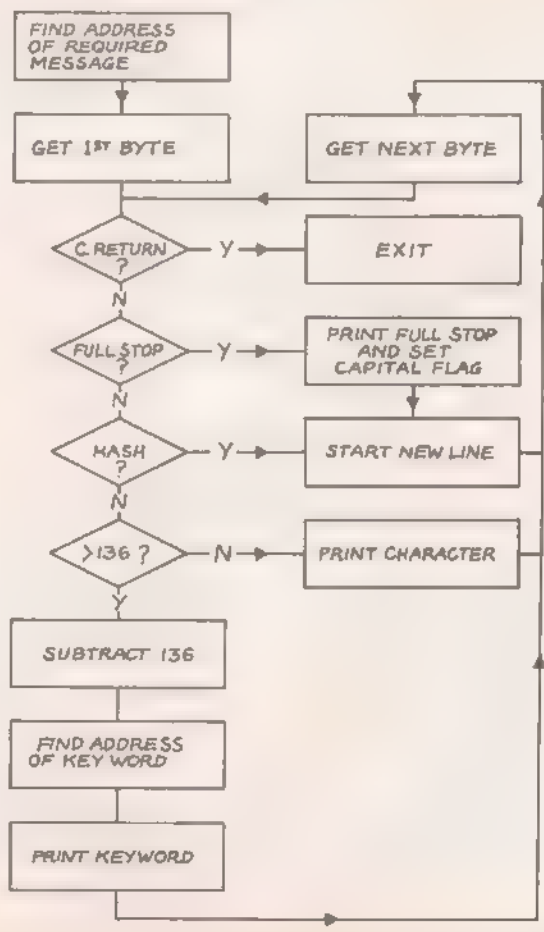


Fig 2




```

10 REM Text Compactor v.2
20 REM By Jill Tullin
30 REM Pseudo BASIC for MICROSOFT
40 REM (c) 1985
50 :
60 VARTOP=5200
70 MINEM=5200
80 REM also known as MINEM,RAMTOP etc
90 :
100 address=VARTOP
110 dictionary=address
120 tokens=28:painter=0
130 startlength=0:newlength=0
140 DIM T%(tokens)
150 long$="" :short$=""
160 POKE address,13
170 address=address+1
180 FOR X=1 TO tokens
190 READ T%(X)
200 AS=T%(X)
210 GOSUB 500
220 NEXT
230 :
240 lexbase=address-1
250 REM long$
260 IF long$="FINISH" THEN GOTO 410
270 PRINT "START "+LEN(long$)
280 startlength=startlength+LEN(long$)
290 S$="" :pointer=1
300 FOR X=1 TO tokens:AS=
310 IF MID$(long$,pointer,LEN(T$(X)))=
320 T$(X) THEN AS=X:tokens
330 NEXT
340 IF AS=0 S$=S$+MID$(long$,pointer,
350 :pointer=pointer+1:GOTO350
360 S$=S$+CHR$(AS+130):pointer=pointer
370 +LEN(T$(AS))
380 IF pointer<LEN(long$)+1 GOTO 300
390 PRINT "NOW "+LEN(S$)
400 newlength=newlength+LEN(S$)
410 AS=S$:GOSUB 500:GOTO250
420 :
430 POKE address,&FF
440 PRINT "DICTIONARY RESIDES &"-dic
450 "ary" to &"-textbase
460 PRINT "SQUASHED TEXT FROM &"-textba
470 "se" to &"-address
480 PRINT "COMPRESSED BY "INT((startlen
490 "gth-newlength)/startlength+100)%"
500 END
510 :
520 :
530 :
540 :
550 :
560 :
570 :
580 :
590 REM DICTIONARY
600 REM Entries made in length
order, ie 133 chars, then
9 chars, then 8 etc.
Max. 118 entries.
610 :
620 DATA 133,old,the,all,east,west
down,must,see,but,too,new,one,have
stop,even,way,ing
630 DATA you,land,ly,key,in,it,ic,oi
ex,ile
640 *****
650 :
660 REM PUT LONG TEXTS HERE
670 REM NB. Text should always be in
lowercase except for effects.
Full stop causes newline and
forced cap. on next character
Hash # causes newline only.
680 DATA "I can see a large old door to
the South here
690 DATA "Here is a key in the lock.
can't turn it."
700 DATA "a small duty key lies on the
ground nearby"
710 DATA "all around the castle MOAT is
the magic stone"
720 DATA "FINISH

```

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Wide vocabulary

Part Two of ZX! Basic written for the 48K Spectrum
by Stewart Nichols

This week, more instructions... and more code. Remember, instructions on how to type in the code for Parts One and Two were in last week's issue. For those with numb fingers, copies can be obtained from me on tape at £3.00 each. Write c/o 82 Laya Drive, Keynsham, Bristol, BS18 2LE.

Instructions

IMx,y - (Move)

Move from current plot position to co-ordinates x,y plotting a line or unplotting as specified by the value of *Over*. Values of *x* and *y* can be from 0 to 255. Note that ZX! Basic pixel grid is used.

For example: 10 IE 20 IF 0.88 30 FOR A = 1 TO 255 40 IMA, 88 + 80 * SIN(A/64 * PI) 50 Next A 60 Pause 0 will plot a sine wave with a continuous line instead of the more usual series of dots that the normal *Plot* command will give.

IN "text", x,y,h,w - (New print)

Print the pixel grid will print text anywhere on the ZX! Basic pixel grid at any height and width combinations within the limits below. Text will wrap around the screen if it is too big to fit in one screen width/height.

"text" - any string of characters code 32 to 127, or any string expression resulting in characters code 32 to 127.

x,y - pixel co ordinate of the top left hand corner of the first character generator in Rom but may be set to any character generator set in Ram.

h - height of characters in character squares (1 to 32)

w - width of characters in character squares (1 to 24)

IDA - (Overall change)

Change the screen attributes to that set by value *a*. This does not change the current attributes for printing etc. For example 10 Print Ink 2; Paper 6; "Hello" 20 1048 will print Hello using red ink and cyan paper then change this to black ink and yellow paper.

IPx,y - (Plot)

Plot the pixel x,y. As the Spectrum *Plot* with colours but using the ZX! Basic 255 x 255 pixel grid.

IQ "text" - (64 column print)

This command is similar to the Spectrum *Print* and ZX! Basic *IT* command but prints at 64 columns per line. This command also supports the following sub commands: (Note Semicolons)

IQChr\$3; - will clear all 24 screen lines and reset the 'print at' position to 0,0. *IQChr\$4*; - will scroll Up the screen by one character line. *IQChr\$5*; - will scroll Down the screen by one character line. *IQChr\$6*; - will print at the next Tab position. There are eight tabs in 64 column printing. *IQChr\$8*; - move current print position left one position (and scroll the screen down if at 0,0). *IQChr\$9*; - move current print position right one position (and scroll the screen up if at 23,63). *IQChr\$10*; - move current print position up one line (and scroll the screen down if at line 0). *IQChr\$11*;

- move current print position down one line (and scroll the screen up if at line 23).

IQChr\$12; - delete character behind present print position and backspace to that position. If at position 0,0; then scroll the screen down and move current print position to 0,63.

IQChr\$13; - new line. *IQChr\$18* to 21 as *Link* to *Over* in normal *Print* but *Inverse* has no effect.

IQChr\$22 or *IQAT* line,column; allows line and column values of 0 to 255 but values above 23,63; will wrap around the screen. *IQChr\$23* or *IQTAB* allows values of 0 to 255 (but see *IQAT*). *IQChr\$24* - to *IQChr\$31* are new graphics characters not available from the keyboard.

64 column printing uses a new character generator which starts at address 51880 for *Chr* Code 24. This character generator is automatically selected when using *IO* (and reset to its original value afterwards).

IR - (Lprint at 64 characters per line)

This command is similar to *Lprint* and prints to the ZX printer and similar printers at 64 characters per line. The following extra commands are also available.

IRChr\$1;ls;le; - will copy the screen from line start to line end. Line start (*ls*) and line end (*le*) must be in the range 0 to 23. Note that semicolons must be used.

IRChr\$3; clear the printer buffer without lprinting contents. *IRChr\$8*; or *IR*, gives tab settings. *IRChr\$34* to 31 lprint new graphics characters.

Other codes 8 to 31 are similar to *IO* codes but alter lprint positions.

ISa, sb, fa, fb - (sound effect)

This command can be used to produce thousands of different sound effects. Experiment with different values of *sa*, *sb*, *fa*, and *fb* but keep values low until you are able to determine the sound produced. Certain values will make sound continue for hours with no way of stopping it. Use same value for *sa*, *fa* and for *sb*, *fb* for single tone.

sa 0 to 65535 start value of parameter one
fa 0 to 65535 finish value of parameter one
sb 0 to 65535 start value of parameter two
fb 0 to 65535 finish value of parameter two
Use the command *For* Next loop for best effect. For example 10 For A = 1 to 100 20 IS50, A, A, 40 30 Next A.

IT "text"

This command is the same as the Spectrum *Print* command but allows printing on lines 22 and 23, has 4 Tab stops, backspace error corrected, no *Scroll?* prompt, *Chr\$9* corrected. Values of line and column from 0 to 255

CDE2	44	22	22	11	22	22	44	00	71	CFE2	CF	0C	43	CD	00	00	05	C3	=	53
CDEA	88	55	AA	00	00	00	00	00	=	FF	CEFA	AD	00	00	3E	44	19	70	=	EF
CDE2	44	99	FF	00	00	00	00	00	=	09	CF02	FD	00	01	0E	28	04	0E	=	94
CDEA	33	88	00	00	00	00	00	00	=	00	CF0A	18	08	04	0E	04	0E	19	=	00
CDE2	33	33	33	33	00	00	00	00	=	00	CF12	70	03	CD	20	01	C3	A3	=	24
CDEA	CC	CC	CC	CC	00	00	00	00	=	00	CF1A	C3	8F	00	FD	CD	01	4E	=	C9
CDE2	FF	FF	FF	FF	00	00	00	00	=	00	CF22	05	20	04	C3	CD	0C	00	=	21
CDEA	00	00	00	00	33	33	33	33	=	00	CF2A	04	C3	A3	00	FD	CD	01	=	2A
CDE2	33	33	33	33	33	33	33	33	=	98	CF32	00	04	3E	19	00	28	06	=	C3
CDEA	CC	CC	CC	CC	33	33	33	33	=	FC	CF3A	CD	20	01	C1	05	C3	A3	=	D0
CE02	FF	FF	FF	FF	33	33	33	33	=	C8	CF42	72	06	02	E6	07	C3	A1	=	CF
CE0A	00	00	00	00	CC	CC	CC	CC	=	3C	CF4A	11	64	CF	3F	0F	5C	10	=	04
CE12	33	33	33	33	CC	CC	CC	CC	=	FC	CF52	11	64	CF	08	C3	11	64	=	CF
CE1A	CC	CC	CC	CC	CC	CC	CC	CC	=	60	CF5A	32	0E	5C	2A	01	5C	73	=	23
CE22	FF	FF	FF	FF	CC	CC	CC	CC	=	3C	CF62	72	09	11	A5	CC	CD	5D	=	CF
CE2A	00	00	00	00	FF	FF	FF	FF	=	FC	CF6A	2A	0E	5C	57	7D	FE	16	=	DA
CE32	33	33	33	33	FF	FF	FF	FF	=	CB	CF7A	11	22	20	21	7A	86	3F	=	4F
CE3A	CC	CC	CC	CC	FF	FF	FF	FF	=	FC	CF8A	3E	3F	91	C6	04	4F	FD	=	CD
CE42	FF	FF	FF	FF	FF	FF	FF	FF	=	FC	CF82	01	48	20	0E	7D	0A	00	=	30
CE4A	00	00	00	00	00	00	00	00	=	00	CF8A	CF	28	02	C6	1E	47	3E	=	1E
CE52	00	00	00	00	00	00	00	00	=	00	CF92	90	47	C3	A3	08	7C	CD	=	DA
CE5A	FD	CD	01	AE	66	00	3A	08	=	BF	CF9A	CF	01	04	03	E6	3F	C0	=	57
CE62	5C	4F	FE	06	CA	3A	5C	4F	=	CF	CFA2	CD	0F	0D	15	70	FA	C9	=	D9
CE6A	EB	00	32	6A	5C	18	E3	00	=	E9	CFAA	3A	91	5C	F8	FD	36	57	=	08
CE72	2A	4F	5C	11	0F	00	19	11	=	1F	CFB2	3F	08	07	3E	20	D7	3E	=	00
CE7A	A5	CE	73	72	CD	C9	1F	=	3D	CFBA	D7	11	32	91	5C	09	C9	CD	=	58
CE82	11	0F	00	2A	4F	5C	19	11	=	1F	CFCA	FD	CF	FD	CD	01	4E	28	=	00
CE8A	29	F8	73	72	C9	2A	4F	=	68	CFCA	FD	AD	3D	01	22	29	D1	C9	=	11
CE92	5C	11	0F	00	19	11	A5	CE	=	0F	CFD2	ED	13	EL	04	22	F8	D1	=	20
CE9A	73	72	CD	CD	1F	11	05	=	D7	CFDA	FD	CD	01	4C	20	09	CD	4D	=	21
CEA2	08	18	E0	FF	01	CA	7A	D1	=	8C	CFDA	2R	01	2A	29	D1	C9	CD	=	21
CEAA	FF	03	CA	4F	D1	CE	0A	CA	=	17	CFDA	EE	01	2A	F0	01	C9	CF	=	00
CEB2	2D	01	FF	05	CA	DC	00	00	=	4F	CFE2	28	12	05	A5	33	05	CD	=	10
CEBA	CD	0A	CF	FD	10	D2	C1	CF	=	EE	CFFA	0F	10	0D	C3	15	C5	CD	=	D9
CEC2	21	C9	CE	5F	1A	00	19	5E	=	A4	DD2	77	5E	1B	04	C5	01	CA	=	C9
CECA	19	C5	C3	DA	CF	73	11	2E	=	17	DD2A	EB	76	00	4F	29	29	29	=	04
CEC2	4B	4A	5A	DA	0C	0A	07	7E	=	5D	DD12	01	EB	79	D6	03	3E	43	=	7F
CEDA	7D	7C	7B	7A	79	73	72	C9	=	15	DD1A	19	05	4F	FD	CD	01	4E	=	28
CEE2	FD	CD	01	4E	28	0D	CD	CD	=	E4	DD22	06	05	CD	F2	CE	D1	79	=	18
CFEA	0E	1E	43	21	08	5D	C3	D2	=	70	DD2A	D6	19	D9	CD	CD	D0	D1	=	C5

are accepted but values above 23.31; will wrap around the screen.

Do not use local colours when printing on lines 22 and 23 as an OUT OF SCREEN error may occur.

 $\mathcal{U} = \{U_p\}$

Up scroll the whole screen one character line with attributes

:Vo,n - (Swap attributes)

Swap screen attributes old (o) with new (n) values 0 to 255.

For example 10 (V58,32 will swap all Ink Paper 7 with Ink 0: Paper 4

[Wcs.ln.cw.lh.ra.d - (Window roll/scroll)]

Pixel roll or scroll: a window in any direction left, right, up or down. The command will move the window by one pixel without attributes.

cs - is the column start value (0 to 31) left hand column

is the pixel line start value (0 to 19) top line.

cw - is the window width in character columns (1 to 32)

lh – is the window height in pixel lines (2 to

1921

rs - defines Roll or Scroll. 0 is Scroll; 1 is Roll.
 d - defines the direction of movement. 0 is left; 1 is right; 2 is up; 3 is down. Note that
 cs - cw must be less than 33.

For example to Roll the whole screen up by five pixels, type **■ For A - 1 TO 5 20**
!W0.032.182.1.2 30 Next A.

EXn - (Trace On)

This is a trace command that allows you to slow the execution of ZXI Basic by *n/50* secs delay between statements. (A value of 0 will single statement step on a key press). The command executed is indicated at 21.0 with a display of *[Line:Statement]*. A useful command when de-bugging ZXI Basic.

!Y - (Trace Off)

Turn off the Trace set by the /X command.

13.00

The last of the ! commands. This command disables or enables the Break keys. 120 will enable the Break keys. 12>0 will disable the Break keys.

Do not use this command until you are happy with the running of your program and you

have saved a copy of it, as there is no way of returning to ZX! Basic unless you have an 'End Program' option which enables the Break keys.

Extra Commands

Because ZX! Basic allows plotting over the whole screen but *Point* will only detect a pixel on the 255 × 175 Spectrum Basic grid, the following routine has been added to point the ZX! Basic screen (255 × 255).

Poka 65362.x co-ordinate

Poke 65363.y co-ordinate

This will return a value of 0 or 1 depending on the state of the pixel. Values of y from 192 to 239 will return a value of 0.

Spectrum Screen\$ (line,column) will only detect characters from Space to Copyright (32 to 127). ZXI Basic has a routine to detect UDG's as well as codes 32 to 127.

Poke \$5360,line

Poke 66361 column

```
Let string variable = Chr$(Uhr 64892)
```

Next week, more code plus a demo program.

0192	5E	AF	0A	20	12	18	10	C	=	FC	D1EA	43	EE	7F	C9	3E	09	02	5D	=	66	D06A	40	19	C3	C4	CF	3F	1B	98	=	9B
019A	C1	E1	25	10	0C	21	0F	5A	=	89	D1F2	60	04	39	00	=	00	D0C2	37	0F	0F	0F	6A	0F	AF	7A	=	73				
0262	11	FF	5A	E1	EC	02	ED	0B	=	F2	0032	00	FA	CF	07	4E	20	05	3A	=	5B	D0CA	E4	1D	F4	49	67	C9	F0	CB	=	2C
016A	3A	0D	0C	0A	20	12	18	10	=	8E	003A	2B	01	10	03	3A	EE	00	=	16	D0D2	01	1C	00	11	AD	0D	D5	7B	=	FD	
0172	6C	21	1F	40	01	C4	19	C9	=	82	0042	70	0F	0F	C8	47	2B	03	=	63	D0DA	A7	00	F0	CB	01	1C	00	21	=	50	
017A	FD	08	08	4E	C8	1	35	D1	=	46	004A	9E	F0	3A	91	C0	C0	47	=	20	D0E2	20	40	0A	FD	E5	0E	03	C5	=	29	
0122	03	0D	0F	11	9E	D1	32	0E	=	9F	D052	02	0E	FF	31	00	A7	F0	CB	=	C4	D0EA	E8	1D	F0	FF	19	E0	01	=	20	
010A	50	03	0F	0A	11	AD	CE	C0	=	9C	005A	01	4E	20	05	FD	CU	20	CC	=	42	D0F2	00	F0	B8	7B	A7	20	F1	=	F3	
0192	50	03	AF	3A	0E	5C	17	FE	=	64	D062	37	09	1A	0A	5E	7E	A1	77	=	84	D0FA	20	01	19	C1	0D	CB	20	FE	=	C1
019A	19	09	29	9D	D8	05	7E	CE	=	83	006A	11	AC	27	00	30	12	24	13	=	A4	D1E2	AF	06	20	42	13	10	FC	C1	=	67
01A2	02	00	F1	03	A7	17	17	17	=	AF	0072	20	20	0C	2F	FD	C0	01	4F	=	87	D10A	E1	21	0D	D8	21	20	51	=	92	
01AA	47	53	03	77	0E	F0	C8	01	=	86	008A	20	03	C0	0D	0D	F1	C1	00	=	85	D112	02	58	01	E0	02	ED	00	7A	=	12
01B2	4F	20	71	21	08	49	1	01	=	02	D082	0A	41	C0	23	E0	00	77	20	=	76	D1AA	80	50	06	20	18	13	10	FC	=	4B
01CA	40	01	FF	17	36	0D	ED	0E	=	2A	D09A	05	4F	08	17	02	05	D9	3A	=	DE	D122	21	00	40	01	43	01	E9	0A	=	AF
01C2	23	13	01	6F	72	7A	0D	5C	=	5B	D097	21	5C	05	7C	20	FD	76	57	=	CA	D12A	00	43	14	F0	0E	01	4E	00	=	1B
01CA	77	ED	07	01	43	16	21	00	=	91	D09A	01	07	F1	32	01	5E	00	01	=	72	D132	21	FF	57	0A	08	E5	0E	03	=	5B
01D2	00	03	AD	03	21	13	5B	22	=	14	D0A2	C0	00	C0	01	4E	2A	05	71	=	2E	D136	E5	0F	21	20	00	19	E8	01	=	F0
01DA	F0	01	AF	47	77	23	1A	FC	=	50	00AA	C0	58	1B	03	E5	C0	BF	00	=	99	D142	20	00	E0	00	70	3C	20	F1	=	0F
01F2	00	00	30	9E																												

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ACTIVISION
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Type righter

The final part of the QL input routine written by Jonathan Prestidge

Shown below is (as Listing One) a sample program. Although it is not a fully fledged program it shows one easy way of implementing the routine in a practical application. Having said that, however, it isn't a bad start to an address data base if you're thinking of writing one.

The first part of the program, Line 130, sets up the error window (which would replace the need for Line 1010 in the main listing). This is where error messages will appear during the running of the program if the user makes a mistake. You can position the error window anywhere on the screen you want to suit your program and have the ink, paper, and character size as you like too, just by altering Line 130. The channel of the error window is set to three by the variable *ECHAN* but if you want to use Channel three, for a printer say, simply change the '3' for a spare channel number and the error window channel will automatically be changed throughout the routines.

The next thing that the program does is to lay out all the prompts on the screen. Each prompt is next to where the corresponding input will take place, as if a whole blank record were displayed on the screen. This lets the user know what's coming up next, and where he or she can expect the cursor to appear as they input one field after another. Then, since the user can see what input is next, he or she can take full advantage of the QL's type-ahead buffer.

In the 'Set-up variables' section (Lines 170 to 230) the necessary format information for the input command on Line 280, is set up in four arrays. This allows the *Input At* command to be referenced easily by a variable. In the sample program, the command is referenced by the loop 'Fields'. If you are writing a program from scratch this is probably the easiest way to use the routine - it makes formats easy to de-bug too since they're all together at the top of the program and by adding formats, qualifiers, etc. to the arrays and upping the 'Num Fields%' variable, you can add fields without ever having to worry about Lines 250 to 330 of the program. Of course, there will be exceptions to this where you want special processing for specific fields or some validation that the routine can't handle; even then there's quite a neat way of doing that, with a 'Select On Fields' statement (see the QL User Guide under KEYWORDS page 83).

I've utilised the 'F1' and *Esc* key (with Lines 280 to 300), F1 being a 'back one field' key and the *Escape* key as (yes you guessed it!) *Escape*. The back one field effect is obtained by first checking *Star\$*

to see if it equals 'F1', then if it does, one is subtracted from the reference variable (ie, 'Fields') and the processing is sent back to Line 280. The previously input field is then redisplayed and can be altered, deleted, etc. and re-entered. The actual information from the previous field is recovered for this alteration from *Fie\$ (Fields)* which is stored away after every input by Line 270. The effect of the *Escape* key is achieved by Line 300, which simply stops the program when

'*Esc*' is detected in *Star\$*.

It's worth using this program as a guinea pig, trying out anything you're not sure about - always the best way of getting used to a routine. I hope you'll find it useful and easy to program with; and by the way, don't forget to keep a back-up copy of the routine, because typing it in once was enough for me too!

If typing it in is all too much for you, I can supply a copy of both programs in microdrive for the princely sum of £4.50. Write to me at 17 Highfield Drive, Sutton Coldfield, West Midlands.

Last week Part Two of the SuperBasic listing was incomplete - our apologies. This week, Listing Two is the whole of the second part of the routine... honest.

```

100 REMARK      An example program for program for use with the
                  INPUT AT procedure
-----
110 FROM NOW: INPUT AT : REMARK Or whatever file name you have saved the
                        procedure as
120 REMARK ***** Initialization for INPUT AT procedure *****
130 LET ECHAN = 3 :
    OPEN BECHAN, SCR : WINDOW BECHAN, 400, 23, 56, 256-25 :
    CSIZE BECHAN, 1,0 : BORDER BECHAN, 1,7 : PAPER BECHAN, 2 :
    INK BECHAN, 7 : REMARK Error window ( position & size etc optional )
140 REMARK ***** Initialize screen *****
150 MODE 4
160 REFRESH_SCREEN
170 REMARK ***** set up var% *****
180 LET NUM_FIELDS% = 5
190 DIM ANSWERS$( NUM_FIELDS%, 30 )
200 DIM FORMATS$( NUM_FIELDS%, 30 ) :
    LET FORMATS$( 1 ) = "AAAAAAAAAAAA" :
    FORMATS$( 2 ) = "AAAAAAAAAAAA" :
    FORMATS$( 3 ) = "CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC" :
    FORMATS$( 4 ) = "9999" : FORMATS$( 5 ) = "XXXXXXXXXXXX"
210 DIM FIELDS$( NUM_FIELDS%, 30 )
220 DIM CHECK$( NUM_FIELDS%, 20 ) :
    CHECK$( 4 ) = "0 TO 140": REMARK Age check. (can't be older than 140!)
230 DIM QUALIF$( NUM_FIELDS%, 30 ) :
    LET QUALIF$( 1 ) = "NO SPACES, MIN LENGTH = 1."
240 REMARK ***** Main Procedure *****
250 FOR FIELDS% = 1 TO NUM_FIELDS%
260 INPUT AT FIELDS% = 2, 23, FORMATS$( FIELDS% ), FIELDS$( FIELDS% ),
    CHECK$( FIELDS% ), QUALIF$( FIELDS% )
270 LET FIELDS$( FIELDS% ) = STR$( INPUT )
280 IF STAT% = "F1" AND FIELDS% > 1 THEN LET FIELDS% = FIELDS% - 1 :
    GOTO 260
290 IF STAT% = "F6" THEN GOTO 260
300 IF STAT% = "ESC" THEN PRINT NO, "PROGRAM ABORTED BY (ESC)": STOP
310 IF STAT% <> "RETURN" THEN DISP_ERROR STAT% & " Key Not Usable." :
    GOTO 260
320 LET ANSWERS$( FIELDS% ) = STR$( INPUT )
330 NEXT FIELDS%
340 PRINT NO, "End of demo": STOP
350 REMARK
360 REMARK ***** REFRESH_SCREEN *****
370 REMARK
380 REMARK Print all prompts and other non changing parts of the screen
390 REMARK
400 DEFINE PROCEDURE REFRESH_SCREEN
410 PAPER 2 : CSIZE 1,1 : BORDER 1,7 : CLS
420 AT 1, 20 : INK 0 : PAPER 7 : PRINT " Address Book "
430 INK 7 : PAPER 2
440 AT 3, 10 : PRINT "Surname"
450 AT 4, 10 : PRINT "First Name"
460 AT 5, 10 : PRINT "Address"
470 AT 6, 10 : PRINT "Age"
480 AT 7, 10 : PRINT "Telephone"
490 END DEFINE
    
```



```

5710 IF CTS = "M" THEN IF 1 < 97 OR 1 > 122 AND 1 < 65 OR 1 > 90
AND 1 < 32 THEN DISP_ERROR E6 & "Letters or Spaces Only." :
GO TO 5400
5720 IF CTS INSTR ALLOWED = 0 AND CP = NUM THEN GO TO 5930
5730 IF LIN, COL + CP - 1 : PRINT 1 : LET INPS( CP ) = CHR$( 1 ) :
DEEP 1,5 : IF NUM < NUM THEN LET CP = CP + 1 : REMARK Display Input
5740 IF 1 < 0 THEN GO TO 5400 : REMARK No need for cursor yet.
5750 REMARK ===== Cursor Keys =====
5760 IF 1 = 192 THEN IF CP > 1 THEN LET CP = CP - 1 :
IF TYPE$( CP - 1 ) INSTR ALLOWED < 0 THEN IF TYPE$( CP ) = " " THEN
REMARK cursor left key
5770 IF 1 = 200 AND CP > 1 THEN
IF TYPE$( CP - 1 ) = "2" AND INPS( CP - 1 ) < " "
AND INPS( CP ) = " " THEN
DISP_ERROR E6 & "Illegal Action" : GO TO 5930
5780 IF 1 = 200 AND CP < NUM THEN LET CP = CP + 1 : IF TYPE$( CP ) = " "
THEN GO TO 5550 : REMARK cursor right key
5790 IF 1 = 9 THEN LET CP = CP + 5 : REMARK Tabulation ( Tab of 5 )
5800 IF CP > NUM THEN LET CP = NUM : DISP_ERROR "End of Field."
5810 IF CTS INSTR ALLOWED = 0 AND CP = NUM THEN GO TO 5930
5820 REMARK ===== Cursor =====
5830 IF "GHOST-CURSOR" INSTR QUALS THEN LET CURS = INPS( CP )
5840 AT LIN, COL + CP - 1 : OVER -1 : PRINT BACKS : OVER 0
5850 AT LIN, COL + CP - 1 : OVER -1 : PRINT CURS : OVER 0
5860 IF "COUNT" INSTR QUALS THEN AT LIN, COL + NUM + 1 :
PRINT "(* CP - PLACE + 1 *) "
5870 FOR A = 1 TO 5 : NEXT A : REMARK Delay loop: speed of cursor flash
5880 AT LIN, COL + CP - 1 : OVER -1 : PRINT BACKS : OVER 0
5890 AT LIN, COL + CP - 1 : OVER -1 : PRINT CURS : OVER 0
5900 IF CHR$( 1 ) INSTR DOTS THEN GO TO 6210
5910 GO TO 5400
5920 REMARK
M A T N L O O P E N D

===== Find Next Vacant Space For Entry If Any =====
5930 IF CTS INSTR ALLOWED = 0 THEN LET CP = CP + 1 : C1# = TYPE$( CP ) :
GO TO 5930
5940 GO TO 5760
5950 REMARK ===== Find decimal point if any =====
5960 IF DOT = 0 THEN DISP_ERROR "Sorry, No Decimals in This Number." :
GO TO 5400
5970 LET CP = DOT : DOT = DOT + 1
5980 FOR A = 1 TO 401
5990 IF TYPE$( A ) INSTR "1234567890" AND INPS( A ) < " " THEN
LET START = A : GO TO 6010
6000 NEXT A : PRINT "FORMAT ERROR, DECIMAL PLACE IN NUM-NUMERIC FIELD" :
STOP
6010 FOR B = DOT TO START STEP -1
6020 IF INPS( B ) < " " THEN LET THE_END = B - 1
6030 NEXT B
6040 IF START = THE_END THEN GO TO 6090
6050 LET TEMP# = INPS( START ) THE_END :
6060 INPS( START ) DOT = FILL# " " : PRINT BACKS : OVER 1
6070 INPS( DOT-LEN(TEMP#)+1 TO DOT ) = TEMP#
6080 AT LIN, COL + START - 1 : PRINT INPS( START ) DOT
6090 LET DOT = DOT + 1
6100 GO TO 5400
6110 REMARK ===== Process Validity of Leading Spaces Before a Value =====
6120 LET ER# = "OK" : REMARK Error flag
6130 IF CP = 1 THEN GO TO 6200
6140 IF 1# = " " AND INPS( CP - 1 ) < " " AND TYPE$( CP - 1 ) = "2" THEN
LET ER# = "ERROR" : GO TO 6200
6150 IF INPS( CP - 1 ) < " " THEN GO TO 6200
6160 FOR A = CP - 1 TO 1 STEP -1
6170 IF TYPE$( A ) < "2" THEN GO TO 6200
6180 IF INPS( A ) < " " THEN LET ER# = "ERROR"
6190 NEXT A
6200 GO TO 5610
6210 REMARK ===== Check and evaluate input before exiting =====
6220 LET STAT# = "RETURN"
6230 IF 1 = 27 THEN STAT# = "ESC"
6240 IF 1 = 232 THEN STAT# = "F1"
6250 IF 1 = 236 THEN STAT# = "F2"
6260 IF 1 = 240 THEN STAT# = "F3"
6270 IF 1 = 244 THEN STAT# = "F4"
6280 IF 1 = 248 THEN STAT# = "F5"
6290 IF 1 = 208 THEN STAT# = "UP"
6300 IF 1 = 216 THEN STAT# = "DOWN"
6310 LET MARK2 = 1 : MARK# = 0
6320 FOR A = MARK2 TO NUM
6330 IF TYPE$( A ) < "2" OR TYPE$( A ) = "9" THEN MARK# = A : GO TO 6360
6340 NEXT A
6350 GO TO 6430
6360 LET MARK3 = 0
6370 FOR A = MARK TO NUM
6380 IF INPS( A ) < " " THEN LET MARK3 = 1
6390 IF MARK3 = 1 AND INPS( A ) = " " THEN IF TYPE$( A ) = "2" OR
TYPE$( A ) = "9" THEN DISP_ERROR E6 &
"Distorted Numbers not Allowed" : GO TO 5400
6400 IF TYPE$( A ) < "2" AND TYPE$( A ) < "9" THEN LET MARK2 = A :
IF MARK2 < NUM THEN GO TO 6320
6410 NEXT A
6420 REMARK ===== Out put strings =====
6430 LET DE = "DEFAULT" : " INSTR QUALS :
IF LE# = FILL# " ", NUM + 1 AND DE THEN LET INPS =
QUALS DE + 11 TO DE + NUM + 10 :
6440 LET FUL INPS = TYPE$ : LET STA INPS = ZIPS
6450 FOR A = 1 TO NUM
6460 IF TYPE$( A ) INSTR ALLOWED THEN LET FUL INPS( A ) = INPS( A )
6470 IF TYPE$( A ) = " " THEN LET STA INPS( A ) = " "
6480 AT LIN, COL + A - 1 :
IF TYPE$( A ) = "9" AND FUL INPS( A ) = "0" THEN PRINT ZEROS :
ELSE PRINT FUL INPS( A )
6500 NEXT A
6510 FOR J = 1 TO NUM
6520 IF STR INPS( J ) < " " THEN GO TO 6540
6530 NEXT J
6540 FOR I = NUM TO 1 STEP -1
6550 IF INPS( I ) < " " THEN GO TO 6530
6560 NEXT I
6570 IF 1 < 0 THEN LET STR INPS = " " : GO TO 6590
6580 LET STR INPS = STR INPS( J TO I ) : REMARK no spaces bef' or aft'
6590 IF NO SPACES AND " " INSTR STR INPS THEN
DISP_ERROR E6 & "No spaces allowed in this field" : GO TO 5410
6590 LET KEY INPS = INPS : REMARK With leading & trailing spaces
6600 REMARK ===== check ranges =====
6610 IF LEN( STR INPS ) < MIN NUM THEN DISP_ERROR
"Not Enough Characters. (min. " & MIN NUM & " )" : GO TO 5400
6610 IF LEN( RANGE# ) = 0 THEN RETURN
6620 LET TP = " " TO " INSTR RANGE#
6630 IF TP THEN IF STR INPS < RANGE#( 1 TO TP - 1 ) OR STR INPS >
RANGE#( TP + 4 TO 1 ) THEN DISP_ERROR E6 &
"Out of Range : " & RANGE# : GO TO 5910
6640 IF TP THEN RETURN : REMARK Check already done
6650 LET RANG# = " " : ER2# = "ERROR"
6660 FOR A = 1 TO LEN( RANGE# )
6670 IF RANGE#( A ) = " " THEN RANG# = STR INPS THEN LET ER2# = "OK"
6680 IF RANGE#( A ) = " " THEN LET RANG# = " " : GO TO 6700
6690 LET RANG# = RANG# & RANGE#( A )
6700 NEXT A
6710 IF RANG# = STR INPS THEN LET ER2# = "OK"
6720 IF ER2# = "ERROR" THEN DISP_ERROR E6 & "Out of Range : " & RANGE# :
GO TO 5400
6730 END DEFINE INPUT AT
6740 REMARK
end proc. #
=====
6750 REMARK
print error message. (PROC. DISP_ERROR)
=====
6760 DEFINE PROCEDURE DISP_ERROR ( PR# ) :
6770 CLS BECHAN : IF DEEP THEN DEEP 500 , 20
6780 AT BECHAN, 0,0 : PRINT BECHAN, PR# : PAUSE 130 : CLS BECHAN
6790 END DEFINE DISP_ERROR
6800 REMARK
end proc. #
=====

```

Tap dancing

Get your dots and dashes sorted out with this offering from **Bob Baxler**

Morse Code has proved essential for world communications. From the early Telegraph to DX working, the Samuel Morse code provides us with a format which is quite easy to learn and an international standard for communicating over long or short distances. Where once communications or signals were restricted to a 'line of sight' only, Morse started us on a road where civilisation began to talk over short and then long distances. The fate of nations and the history of the world has been changed due to Samuel Morse and the simplicity and reliability of the *Didah* language.

This program has been developed primarily as a learning tool for those wishing to sit for their Post Office Amateur Radio Licence. The British morse test is 12 groups/min whilst the Americans subject their novices to only 5 g/m. With this in mind, the program has a variable speed menu which should suit the very beginner and the more experienced.

Option seven is not used in this program. It is included to facilitate the further expansion of a routine for hardware interface to a transmitter.

Although the program has been timed using a stopwatch for the 12 and 13 groups, the X variable may be adjusted to suit if the program or routines are modified in any way. Likewise the Tone and Volume controls may be adjusted accordingly. The Duration of the sound may also be adjusted, although care should be taken that the duration does not exceed that of the fastest group's time periods of the pulses. Experimenting with Envelope shaping may prove interesting here.

Program Notes

Line No	
10-100	Initial Setup
120-230	Titles
250-400	Main Menu
420-550	Adjustment Menu
570-660	Volume Adjustment
680-750	Speed Adjustment
770-890	Tone Adjustment
910-960	Tone Sounder
980-1020	Time/Delay Counter
1040-1250	Selection & Printout
1270-1300	Random Letters
1320-1350	Random Numbers
1370-1400	Random Procedures
1420-1450	Mixed Groups
1470-1600	Keyboard Output
1620-1630	Transmission Interface (not used)
1650-1720	Instructions
1740-2110	Morse Table
2130-2190	Data Bank

Variables

Char	Ascii Character
Gry	Groups 1-36
Tn	Tone Level
Dur	Sound Duration
Vol	Volume Level

Sp	Output Speed
Cv	Character Value
Ds	Data Store Pointer
Gc	Gabbage Collection
X	Time Variable
Dc	Data Character
P	Delay Period
D	Delay Counter

If you don't want to wear your fingers out typing, I can supply tape copies for £2.75, including postage. Write to me at PO Box 17, Burnham-on-Sea, Somerset.

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10 REM * ANCHOR *
20 REM
30 REM * 8.8.1985 *
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1350 REM 1,12,1
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Mouse + cheese

Here's an intriguing little story for those of you struggling to finish *Finders Keepers*. John Watson of Rochdale writes: "My young son has been playing the game for weeks but try as I may he was unable to finish with more than 88%. In an effort to help I used this small program that reveals the alphanumeric characters hidden in the code.

```
10 CLEAR 24200
20 LOAD "CODE 24201
30 FOR F = 24201 TO 65367
40 IF PEEK F THEN GO TO
70
50 IF PEEK F 127 THEN GO
TO 70
60 PRINT CHR$ PEEK F;
70 NEXT F
80 STOP
```

"To our surprise we came across a mouse and later on a very fat mouse. We already had the cheese and as you know in this game certain objects combine to form other objects. 1 mouse + 1 cheese = 1 very fat mouse, or so logic would suggest. But after looking very hard we never found the fabled mouse! A letter to Mastertronic was required. They replied promptly but sadness befell the assembled throng... No mouse. According to Mastertronic 88% is the maximum score and not even a skinny mouse exists.

"However, it states in the instructions that the Knight has two options:

- 1) Collect as much as possible and then escape; and
- 2) Return to the King and join the Knights of the Polygon Table (with hints of the hand of a fair princess).

"But as it stands only the options to escape with the loot exists. Not only no mouse, but no fame and even worse no princess! It looks like a case of the 'Faulty End' or even the 'Forgotten End'.

"Anyway here are some hints:

- 1) Philosophers stone + iron bar = gold bar;
- 2) Cutty Sark + empty bottle = ship in bottle;
- 3) Spark of life + pile of mud = mud monster;
- 4) Broken sword - blacksmith = excalibur; and
- 5) Drop charcoal, sulphur and saltpetre at the feet of the puss without boots - it forms gunpowder which can be used to remove the cat if you light it with the magic flame."

Well, thanks for the letter John, even if it is bad news to players looking for that elusive final 12%. Nevertheless it is one of the best cheap games available, in fact exceptional value for money, and the economics of this thing must make it impossible for them to get involved in prolonged efforts to correct a major bug. Such problems can take an age to solve, for instance it's taken nearly a year for *Swords and Sorcery* from PSS to be sorted out after the first adverts appeared.

Now then lets get on with some more of your hints and tips left over from the arcade special. Graham Robinson of Durham has sent this. "After reading your column for many months I decided to try and find a game which nobody had reported tampering with (an awesome task) but finally I found it. Quicksilver's *Astro Blaster*. I found a neat way of returning to Basic was built in. Load the tape as usual - play game to get a high score. After the writing inviting you to enter your name has finished press 'T', then type either *Poke* 27422,0 for infinite lives or

Poke 26396, x for x lives. Then *Goto* 40 to start program."

Graeme Foster has a tip for the ancient *Orbiter* by Silversoft - after game-over appears press *Caps Shift* then *Break*. Then type *Edit* and change *a*=26712 to *a*=28718 to give you 256 lives and 256 smart bombs.

Here are some tips that arrived without a name for the Commodore. Unfortunately no details are given on how to get them in. I have to repeat that I don't possibly have the time, or the software come to that, to test out every one of these things and fill in the gaps. Despite that, I know that a lot of you have no trouble getting these Pokes in and they're therefore worth printing. Can I ask that anyone who has details on how to get into these games to send them in so that using the pokes will be easier for beginners. Anyway, you can always use the dodge of resetting the computer by touching Pins 6 and 2 of the user port, or buy a breaker switch which is a small plug-in utility that does the same thing.

Here are the pokes. *Manic Miner*: *Poke* 16419, screen and *Poke* 16424, lives. *Attack of the Mutant Camels*: *Poke* 11639,255 and *Sys* 4096 to start; *Motor Mania*: *Poke* 8646,255 and *Sys* 8000; *Guardian*: *Poke* 21050,169 *Poke* 21051,0 *Poke* 21052,234 *Poke* 21053,234 *Poke* 21054,234 and *Sys* 24765; *Antipital*: *Poke* 22743,57 *Poke* 22744,57 and *Sys* 16384; *Gryphon*: *Poke* 7313,169 *Poke* 7314,0 *Poke* 7314,234 and *Sys* 5200 then press *Run/Stop* - also try *Sys* 5000.

Andrew Donaldson of Walton-on-Thames has written with a plea for help, prompted by the abilities of the hackers who write in to the column - "Can anyone help me to get into Artic Computing's *Voice Chess* so that I can get it to print out moves on a printer other than the ZX. With my Marneson Tally and ZXI print interface I can get screen dumps of the board and piece positions but the program crashes when I try to print the table of moves." I know this isn't the usual area we deal with, but if any hacker fancies a challenge to their abilities then I can put you in contact with Andrew.

I've also had several pleas for help with Micropower's *Castle Quest* on the BBC - such as this from Waseem Asghar of Leyton. "What do you do with the wand after you've killed off the witch?"

I know that some of our readers finished this program ages ago, and I would greatly appreciate it if any of you could let me have a complete run down of the solution to answer these specific questions.

Finally this week, Robin Williams of Blackheath wonders if he is the first to finish Superior Software's *Repton* (a sort of enhanced *Boulderdash*) on June 8. He recommends it as an excellent game for any Beeb owner and has given us the screen passwords: A Screen One; B Chameleon; C Terrapin; D Sidewinder; E Gecko; F Python; G Salamander; H Igguana; I Cuttlefish; J Octopus; K Giant Clam; L The Kraken. Thanks, Robin.

Tony Kettle

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Between now and September TONY KETTLE will be keeping you up to date on the *Arcade Avenue* page with just who has the scores to beat. Then, in September, the top three scorers on each machine will battle it out for a place in the final and the chance to be the first to play our 'top secret' games.

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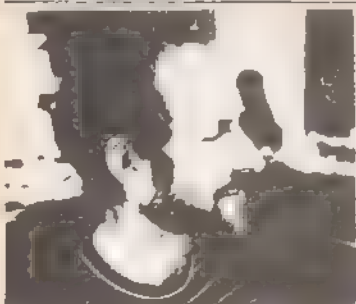
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Tony Bridge's Adventure Corner



MUD adventuring

Continuing our look at overseas adventurers and their problems, let's hear this week from James Bonello of Malta. He's written to me several times over the months, and I feel that I should mention him before he gets too angry!

He's the owner of a Commodore 64, and is particularly interested in corresponding with others who are working their way, like him, through *Eureka!*. Write to: 161 Old College Road, Sliema, Malta.

On now to a couple of Infocom adventures, and some help for players stuck in *Planetfall* and *Starcross*. ■ R Coomber, from Staffordshire is working through the former on his Einstein. He asks: "How do I kill the Microbe at Station 326 and get back to normal? How do I get into and out of the Radiation Lock? Where is the Radiation Suit?" To deal with the Microbe, you'll need the Laser - turn it up to the maximum setting (before you meet the Microbe) and then fire repeatedly. Now, here's a surprise, which may well throw many players off the scent!

This is *not* a zapping exercise - the laser has no effect on the Microbe, but it *does* love warm things, and now your laser will be red-hot. Just throw it into the cavern and the Microbe will follow. As for the Radiation Lock, you can't get into it (it's there for a bit of colour), and so you can also forget about the Radiation Suit. Mr Coomber is happy to help anyone currently working through the adventure, and his address is 14 Francis Green Lane, Penkridge, Staffs ST19 5HF.

Starcross ■ also giving trouble, to Mr

B Walker for one, whose cry from the heart is: "Help! I'm stuck and would be grateful for any help that you can offer." He's at 38 Roman Way, Edgbaston, Birmingham B15 2SJ.

Geoff Phillips is stuck in the game too. "In particular, extracting the red rod from the rat-ant nest, trying to get down from the control bubble and understanding the 3-slit machine."

To get the rod, throw something at the nest - anything will do except another rod! To get down from the control bubble, jump off and then fire the gun at the drive bubble. There are, as you know, several slot machines around - try inserting the ceramic disc to get a result.

And while I'm talking of Infocom adventures, let me report news of a most profound and shocking nature which has momentarily shaken my previously rock-like faith in the company - on idly messing around with *Deadline* the other day, I actually found two *spelling mistakes* in close succession! No, I couldn't believe it either, but there you have it. . .

Geoff also asked me to pass along a few hints. "In *Beyond's Shadowfire*, you'll find lots of interesting things to be found around the ship. For example, the captain's cabin has a key-card that gets you in through the door, and there is also a strange device in the science area. It would have been nice if the game awarded a bonus score for collecting souvenirs (there are hundreds of weapons all over the place). To stop Zoff escaping get Manto to drop the transporter over the doorway, then retire back to the ship.

"Once there, Manto can monitor who is passing the transporter and beam up a surprised-looking criminal. In fact, using Manto to beam people up and down seems to be the main tactic for surviving the attack outside the room where the Ambassador is kept.

"A problem with Infocom games is that, when you come to the end you often have to switch off and reload. An improvement, on the C64 anyway, is to type *Poke 792, 0:Poke 793.12* before loading the game. You are then able to restart by typing *Restore*."

Most of you, I imagine, will have heard or read about *MUD*. It's short for *Multi-User Dungeon*, and until now was only available to Essex University students and lucky Commodore owners with

modems (used to tap in to the main computer, in the same way as user tap into Prestel or Micronet).

Richard Bartle and Roy Trubshaw, a pair of former Essex University students, set up the first *Dungeon*, which is still running, back in 1980 on the University's main-frame. I've had only a very brief exposure to *MUD*, but it's absolutely fascinating. Imagine a *Zork*-like scenario, with lots of gold, treasures, combat and most important, lots of difficult, complex puzzling and detective work - and then share the adventure with lots of other players, all trying to out do each other (and you!) in scoring points. Apart from collecting treasure to gain points, they are also won by killing off other players (and lost, of course, by being killed), which is why proceedings can get heated! Points are important, as your rating goes up according to how well you have played, the ultimate accolade being promotion to Wizard. Attaining this much contested position renders you pretty well invincible, but also allows you to actually change the parameters of the game itself. This means that the more humble player can be getting along quite well in working through a particular problem, and then find that he has been led up a long garden path by a sniggering Wizard. This, rather than putting anyone off, is all part of the fun, and indeed an incentive to keep slog-ging away at amassing points for your own apotheosis.

I could go into far more detail, but why not try it for yourself? Soon, *MUD* will become available to any computer-owner with a modem. The computer version is apparently opening up to non-C64 owners this month (see *News* July 25 issue) and an enhanced version from British Telecom, which will be available for a trial period in September, is scheduled to come on-stream in November.

In order to play the BT version, the user must first purchase a *MUD*-pack for £20 (and early purchasers will be able to play free for that trial month), after which an hourly charge is made while on-line to the *MUD* computer.

I find all these charges (BT and Compuserve have different scales, with Compuserve requiring a monthly subscription, the level of which decides your hourly charge) rather high at the moment.

Knowing how addictive *MUD* can become, I shudder to think of my phone bill - imagine two or three hours of play a night for three or four nights a week! Do they have soup kitchens for adventurers? I'm sure, though, that if the project becomes a success, that these charges will come down.

I'd recommend *MUD* unreservedly to any millionaire adventurer, and if the rest of us can keep our modem adventuring to a reasonable level (difficult though ■ will obviously be!), then I think multi-player adventures like this could become very important in the future.

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Phil Rogers 'Peek & Poke', 'Popular Computing Weekly' Jan 1985 (Vol IV, No 1)

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ACORN USER 17 issues April 1983-November 1984 £12. Postage £5 A&B Computing, 12 issues May 1983-April 1985 £10. Postage £4. Mr Small 8 Cherry Tree Road, Chinnor, Oxon.

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The Micro Travel 15	Aug 11	Burnley Central Rugby	60p adults 30p children	Palms Computer Services 0862 53041
Computer Show	August 17 10.30am-8.00pm	Library Hall Homer Road Soham West Midlands	80p	CJS/Northleach 04516 608
Computer Show	August 18 10.30am-4.00pm	YMCA Hall Sever Street Gloucester	90p	CJS/Northleach 04516 608
Small Business and Home Computer Exhibition	Aug 10-20 10.00am-9.00pm	"Gokigogori" Timber 5 Chappenhall Wiltshire	£1.50 adults £1.00 children	Kevin Angell/ Simon Main 0249 456444
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SPECTRUM software. Quill version £9. Avalon £3.50 Ground Zero £2. Kung Fu £2.50 will split Tel 041 881 9759 (between 6.30-7pm Saturday) or write P. Kernachan 65 Houghton Pk. Glasgow G53 6AN Scotland

AMSTRAD CPC464 colour monitor for sale. mint condition some software included. Only £270 phone 061 881 3651 Tony

AMSTRAD (green tube) + Basic part + £200 and new April issue boxed etc. Phone 091 472 3230 eyes

PANASONIC MSX 64K Boxed with leads. Manuals and a cartridge game. Unwanted gift with full guarantee. Worth £300 bargain £155 one Tel. 01-938 1907 after 6pm

AMSTRAD software all originals. Quill £9, Blagger, Codename Mat, Manic Miner, Roland Ropes, Survivor, Technician, Ted and Fighter Pilot £4 each Tel 0630 57129

SOFT OPTIONS handbook and artist of magic pan, symbol 484, big letters paint 464 the artist. Swap for Myrdin flight simulation or W.H.Y. Money's Eight Way Paint Stan 593 8522

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AMSTRAD CPC464 mono screen & DK Tronics speech synthesizer & 3" single disc drive & SAGA Tazan KP-810 printer & £500 + software & magazines & books & discs; (Tassword, Mastiff, Pascal 41 games) VGC £850 one (No split) Rick 444132

AMSTRAD CPC464 (colour) in box one month old. Complete with manual or logo and system utilities. Over 11 months guarantee £400 one Tel 0783 (Sunderland) 42788 after 6pm

WANTED - BBC Personal, preferably with disc drive to swap programs. hints tips etc. Write to - Paul Phillips, 13 Mountain Rd. Conwy Gwynedd

48K SPECTRUM plus 6 months guarantee. ZX printer. Kempston interface, over £100 of software £50 worth of books, whole system worth over £350. Quick see a bargain only £145 one phone now! Mark 907 8398

ATARI XE130 128K plus disc drive and discs and Dos 2.5. Six weeks old £320 one. Phone Steve 0268 727068 daytime or 0268 729138 nights

ELECTRIC software's new graphic adventure 'The Wreck' for 48K MSX micros, for sale, one only RRP £14.95 my price £10 one. Tel Neil on 0532 672723

AMSTRAD software for sale. All titles original as new. Combat, Lynx, Galactic Pique, Hunter, Kuller, Roland Caves, 30 Star Strike £4.95 each. Phone 01-743 3931 ask for John

ADVENTURE HELPLINE

Twin Kingdom Valley on Electron. How do I get the giant to follow me to Watermead? Alan McGregor, 6 Marchmont Gardens, Strathaven, Strathclyde. (Tel 0357 22082.)

Arlec on Spectrum. I cannot get into the temple or across the river in the river: valley D. Kirby, 89 The Vineyard, Richmond, Surrey.

The Hawk on Spectrum. How do you kill bees? What does the fuzzy area mean? How do you kill ants? What do the scratch marks on the wall mean? Any help at all. Graeme Cloughley, 35 Mungahed Road, Bainsford, Falkirk, Scotland

Valkyrie 17 on Spectrum. I have got out of the hotel, got the keys and book on slung, but I cannot get down the slope because the voice stops me. Do I have to do this? What do you see with the grille in the hotel? Mark Bell, 96 Grange Avenue, Wickford, Essex.

Message from Andromeda on Amstrad. How do I get past the alien commander's chamber? How do I gain access to the teleport and how and where do I use the explosives, the coin the metal bar and the detonator? R. Wilson, 7 Cawthorpe off Dukes Brow, Blackburn, Lancs

Gremilins on Spectrum. How do I stop the snowplough from running me down and how do I create an explosion? Any help gratefully received. Symon Kendall, 50 Tower Street, Treforest, Pontypridd, Mid-Glamorgan.

Curse of the Werewolf on Vic20. How do I get into the castle if I don't have the staff? How do I make silver and what use is the telescope, sword and scroll? M. McGowan, 47 Hallgarth Circle, Keady, Cumbria

Tower of Despair on Spectrum. How can I escape the statue in the woods, I have all the magic items, gunfight and staff, but keep returning to the same place. K. M. Thorpe, 96 Woodlands Avenue, West Byfleet, Weybridge, Surrey.

Eureka on Spectrum/C64. Is anyone willing to swap the solution to adventure 3, 4 or 5 in exchange for the answer to adventures 1 and 2. Colin Langley, 5 Clare Crescent, Botesford, Southorpe, 5 Humberide

Sherlock on Spectrum. How do I prove that Houdini is innocent? Any other hints. Sara King, 41 Boxley Close, Penenden Heath, Maidstone, Kent ME14 2DP.

Calacombs on Commodore 64. How do you get past the harpy in the statue room? Chris Waite, 16 Sussex Close, Boreham, Chelmsford, Essex CM3 3ED

Crystal Theft on Amstrad. I can't get started! I can offer help in exchange on Message from Andromeda, Jewels of Babylon and Snowball. David Carr, "Thronlea", Oak Road, Moitran Saint Andrew, Macclesfield, Cheshire SK10 4RA

Twin Kingdom Valley on Spectrum. How do I get the desert's king treasure chest? Also any other help please. Christopher Hallam, 43 Duke Street, Cotonmay, Ilkerton, Derbyshire

System 15000 on Spectrum. Any help please. Suz Yam, 3 Grainger Street, Dudley, West Midlands

Zim Zala Bin on Commodore 64. How do you get out of the dungeon and what is the plank for? Clive Dutton, Church End House, Lynn road, Middleton, King Lynn, Norfolk

Castle of Riddles on BBC. How do I get out of the black maze? How do I get past the bear? Kenneth Tracy, 5 Dunnet Close, Mastull, Merseyside L31 3PD.

Eureka - Roman Times on Commodore 64. How do you get in the army camp? I've tried everything! Simon Talbot, 83 Fortis Green, East Finchley, London

Castle Quest on BBC. What do you do with the wand? David Bonohill, 131 Donnington Close, Church Hill, Redditch, Worcs.

Jewels of Babylon on Commodore 64. How do you cross the bridge? Where is the slab of rock? Where is the key? Chris Waite 16 Sussex Close, Boreham, Chelmsford, Essex

Knight's Quest on Spectrum. How can I climb out of the valley by the river? I have found the dwarf, rope, metal bar and magic compass. K. M. Thorpe, 96 Woodlands Avenue, West Byfleet, Weybridge, Surrey

Urban Upstart on Spectrum. I have found the airport and I have got the book on lying and all the other objects, but I can't find the plane. What next? Marc Bell, 96 Grange Avenue, Wickford, Essex

Rendezvous with Rama on Commodore 64. Any help from inside Rama, please. J. H. Picford, 6 Poplar Grove, Bellingham, Macclesfield, Cheshire

System 15000 on BBC. Could someone please send me all the telephone numbers and codes to beat the game. Paul Tang, 21 Main Street, Branniton, Burton-on-Trent, Staffs (Tel: 0283 89635)

Khul on QL. What do the longs and the green tank do? How do you read the message in the pentangle. E. Penman, 7 Kenneth Court, 173 Kennington Road, Kennington, London SE11

Lords of Time on Commodore 64. I can't find the frozen lake on level 2. Michael Carroll, 3 Tusker View, Wexford, Ireland

Sherlock on Commodore 64. I can't do anything! Ian Padden, 14 Mill Place, Bromlands, Irvine, Ayrshire KA11 1HP

Dungeon Adventure on Atari. This is the first adventure game I've tried. I can get almost everywhere in the game but I don't know how to solve it. Mike de Cock, Primeur Straat 11, 21800 Deurne, Antwerp, Belgium

Fantasia Diamond on Amstrad. How do you break the black windows or cross the river? Sean Lambert, 44 Dunlin Road, Cromwell West, Hemel Hempstead, Herts HP2 6LY

Eric the Viking on BBC. I've managed to set sail, but I seem to be getting nowhere from there. D. Dawson, 41 Union Court, Olney, W. Yorks LS21 3AS.

Amstrad

1	(1)	Dun Darach	(Gargoyle)	£9.95
2	(2)	Beach-head	(Access/US Gold)	£9.95
3	(6)	Red Moon	(Level 9)	£6.95
4	(3)	Alien 8	(Ultimate)	£9.95
5	(5)	Knight Lore	(Ultimate)	£9.95
6	(7)	Mini Office	(Database Publications)	£5.95
7	(5)	Rocky Horror Show	(CRL)	£9.95
8	(-)	Combat Lynx	(Darrell)	£9.95
9	(10)	Snooker	(Amsoft)	£9.95
10	(9)	Sorcery	(Virgin)	£9.95

Bubblers:				
		Danger Mouse	(Thorn/EMI)	£9.95
		Gremlin	(Adventure International)	£9.95

Atari

1	(2)	Bounty Bob Strikes Back	(US Gold)	£9.95
2	(1)	Airwolf	(Elite)	£9.95
3	(3)	Drop Zone	(Microprose/US Gold)	£9.95
4	(-)	Archon	(Ariolasoft)	£11.95
5	(-)	Hard Hat Mack	(Ariolasoft)	£9.95
6	(5)	Miner 2049'er	(Big 5)	£9.95
7	(7)	Bruce Lee	(Datasoft/US Gold)	£7.95
8	(-)	Colour Space	(Lamasoft)	£7.95
9	(-)	Ghostbusters	(Activision)	£14.95
10	(8)	MULE	(Ariolasoft)	£14.95

Bubblers:				
		Kassin Cousins	(English Software)	£9.95
		Smash Hits 3	(English Software)	£14.95

BBC

1	(1)	Revs	(Acornsoft)	£14.95
2	(2)	Alien 8	(Ultimate)	£9.95
3	(3)	Region	(Superior)	£9.95
4	(4)	Magic Mushroom	(Acornsoft)	£12.95
5	(5)	Alien 8	(Ultimate)	£7.95
6	(-)	Combat Lynx	(Darrell)	£9.95
7	(-)	Hobbit	(Melbourne House)	£17.95
8	(6)	Elite	(Acornsoft)	£19.95
9	(-)	Mini Office	(Database)	£5.95
10	(9)	Wizardore	(Imagine)	£7.95

Bubblers:				
		Football Manager	(Addictive)	£7.95
		Lode Runner	(Software Projects)	£7.95

Commodore II

1	(1)	Way of the Exploding Fist	(Melbourne House)	£9.95
2	(3)	Hypersports	(Imagine)	£7.95
3	(2)	Elite	(Firebird/Acornsoft)	£14.95
4	(7)	Nick Faldo Plays the Open	(Mind Games)	£9.95
5	(4)	Shadowfire	(Beyond)	£9.95
6	(6)	Soft Aid	(Various Artists)	£4.95
7	(-)	Rockford's Riot/Boulderdash	(Monolith)	£9.95
8	(-)	Fourth Protocol	(Hutchinson)	£12.95
9	(-)	Dambusters	(Sydney/US Gold)	£5.95
10	(-)	Frankie goes to Hollywood	(Ocean)	£9.95

Bubblers:				
		Red Moon	(Level 9)	£6.95
		Great American Road Race	(Activision)	£9.95

Spectrum

1	(1)	Frank Bruno's Boxing	(Elite)	£6.95
2	(1)	Hypersports	(Imagine)	£7.95
3	(4)	Glass	(Quicksilver)	£7.95
4	(-)	Nick Faldo Plays the Open	(Mind Games)	£9.95
5	(3)	Jet Set Willy 2	(Software Projects)	£7.95
6	(1)	Shadowfire	(Beyond)	£9.95
7	(1)	Soft Aid	(Various Artists)	£4.95
8	(-)	Spy vs Spy	(Beyond)	£9.95
9	(-)	Fourth Protocol	(Hutchinson)	£6.95
10	(6)	Rocco	(Gremlin Graphics)	£7.95

Bubblers:				
		Highway Encounter	(Vortex)	£9.95
		Red Moon	(Level 9)	£6.95

All figures compiled by Rams/C

Top Twenty

1	(2)	Hypersports	(Spectrum/C64)	Imagine
2	(1)	Way of the Exploding Fist	(C64)	Melbourne House
3	(4)	Frank Bruno's Boxing	(Spectrum)	Elite
4	(3)	Elite	(C64/BBC/Electron)	Firebird/Acornsoft
5	(5)	Soft Aid	(Spectrum/C64)	Various Artists
6	(-)	Nick Faldo Plays the Open	(Spectrum/C64)	Mind Games
7	(6)	Jet Set Willy II	(Spectrum/C64)	Software Projects
8	(7)	Glass	(Spectrum)	Quicksilver
9	(9)	Spy vs Spy	(Spectrum/C64)	Beyond
10	(10)	Cauldron	(Spectrum/C64)	Palace
11	(-)	Fourth Protocol	(Spectrum/C64)	Hutchinson
12	(12)	Shadowfire	(Spectrum/C64)	Beyond
13	(13)	Rocco	(Spectrum)	Gremlin
14	(8)	View to a Kill	(Spectrum/C64/Enterprise)	Domark
15	(14)	Dun Darach	(Spectrum/Amstrad)	Gargoyle
16	(15)	Alien 8	(Spectrum/BBC/Amstrad)	Ultimate
17	(17)	Nodes of Yesod	(Spectrum)	Odin
18	(-)	Rockford's Riot/Boulderdash	(C64)	Monolith
19	(18)	Herbert's Dummy Run	(Spectrum/C64/Amstrad)	Mikro-Gen
20	(-)	Frankie Goes to Hollywood	(C64)	Ocean

Figures compiled by Rams/C

Readers' Chart No 36

1	(2)	Elite (C64/BBC/Electron)	Firebird/Acornsoft
2	(3)	Dun Darach (Spectrum/Amstrad)	Gargoyle
3	(1)	Soft Aid (Spectrum/C64)	Various Artists
4	(4)	Shadowfire (Spectrum/C64)	Beyond
5	(7)	Hypersports (Spectrum)	Imagine
6	(10)	Revs (BBC)	Acornsoft
7	(-)	Way of the Exploding Fist (C64)	Melbourne House
8	(6)	Confuzion (Spectrum/Amstrad/C64/BBC/Electron)	Incentive
9	(8)	Knight Lore (Spectrum/BBC/Amstrad)	Ultimate
10	(5)	Spy vs Spy (Spectrum/C64)	Beyond

Winning phrase No 36: "Tasty spiv does life" from Terry Flood, Leclair House, Ferrier Estate, Kidbrooke, London, who receives £25. Others who came close include (mainly yetis): "Pope life sad yeti" from Alan Crawford, from Fenwick and "Yeti apple soda" from G P Craig of Dundee.

Now voting on week 37 - £25 to win

Each week *Popular* is compiling its own special software top ten chart - compiled by YOU.

And each week we will send £25 to the person who sends in, with their chart votes, the most original (witty, neat or clever - but never rude) phrase or sentence made up from the letters (you don't have to use them all) in the titles of the top three programs in this week's chart, published above.

You can still vote in the chart without making up a slogan - but you won't be in with a chance of winning the prize.

All you have to do is fill in the form below (or copy it out if you don't want to damage your magazine) and send it off to: Top 10, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP.

Voting for Week 37 closes at 2pm on Wednesday August 7 1985. Entries received after that time will not be eligible for inclusion in that week's voting. The judges decision is final. Only one entry per individual per week will be allowed.

Name	My top 3: Voting Week 37
Address	1
.....	2
.....	3
My phrase is:	

New Releases

HARD-CORE

Elite's computer game based on *Airwolf* the TV program has now been converted to the Amstrad.

Consensus of opinion of



Airwolf in its earlier versions for the Spectrum and Commodore was probably 'pretty good but horrendously difficult' and I think that's the case here.

The vague plot had you plotting your super high powered mega copter through a series of heavily defended caves down to where (as ever) a bunch of scientists are held captive.

This involves shooting away defensive barriers, destroying missile control boxes and, more important than anything else, carefully piloting your helicopter through what are often very narrow gaps indeed.

It's the helicopter control that poses the real headaches - the damn thing refuses to hover in one position. It's impossible to make it stop moving completely, consequent-

ly, doing this whilst also firing lasers and dodging baddies is amazingly difficult. Definitely for hard-core addicts - ordinary mortals may give up pretty quickly.

Program *Airwolf*

Price £7.95

Micro Amstrad

Supplier Amsoft

Brentwood House

169 Kings Road

Brenwood

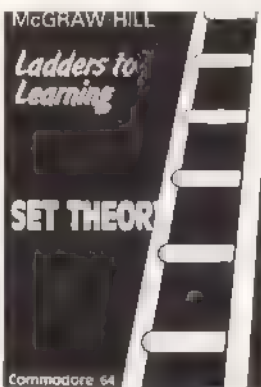
Essex

CM14 4EF

SIMPLE LOGIC

McGraw-Hill's *Ladders to Learning* series of educational titles covers some topics for kids under 13 that I was never taught - this new fangled new maths stuff. So I suppose you can say where the program *Set Theory* is concerned, I represent an under 13 year old at least as well as a real under 13 year old, more so probably.

So it has to be said that the program works very well indeed.



ON THE TRACK

Racing Destruction Set is one of the more original racing programs I've seen, one of the few that owes little to *Pole Position*. In fact, it owes a lot more to slot car racing.

The screen is split into two sections which shows the current racing area since pretty soon the computer car outpaces you and ends up on a later section of track. The display is a kind of 3D in that the cars are displayed at an angle and you can see their sides as they turn corners.

The real skill of the game is judging speed - just like *Scalextric*, if you leave the cars alone they will steer themselves along the right path but hopelessly slowly. It's up to you to use acceleration and braking to make a light of it with the other car.

There are jumps and chicanes to make life difficult

and, a major feature of the game, you can customise your own track layout using a menu driven command system.

Again it reminds me of nothing so much as the car racing games of old - no bad thing. I much prefer this game to the alternative track disappearing into the middle distance style and the design makes for a greater competitiveness as a two player game - you get a much clearer sense of how your rival is doing.

Program *Racing Destruction Set*

Price £14.95

Micro Commodore 64 (disc)

Supplier Ariolasoft

Asphalte House

Palace Street

London SW1E 5HS

Based around grouping basic geometric shapes into different sets and asking simple questions, *Set Theory* teaches simple logic, which is what most new maths turns out to be all about. It shows that Socrates isn't a fish after all. Nor are all men small blue oblongs.

Program *Set Theory*

Price £7.95

Micro Commodore 64

Supplier McGraw-Hill

Shoppenhangers

Road

Maidenhead

Berkshire

SL6 2QL

TRUCKING

All together now: 'I like trucking, I like trucking, I like trucking and I like to truck!'

Well, it had to happen - at last someone has brought out a truck driving simulation - the someone being CRL, and the program *Juggernaut*. Did I say simulation? As they say, show me a 40 tonner that can do 0-40 in under six seconds and I'll show you a cast iron hedgehog.

But really, it's not all that bad. Despite having graphics only marginally better than the Paris section of *View to a*

This Week

Program	Type	Micro	Price	Supplier	Program	Micro	Price	Supplier
The Covenant	Arc	Amstrad	£6.95	PSS	Wizard	Arc	Commodore 64	£9.95 Ariolasoft
Traffic	■	Amstrad	£8.95	Amsoft	Comm 64 Mach. Code as	■	Commodore 64	£16.95 McGraw Hill
War Zone	S	Amstrad	£6.95	Cases Comp Sim	Music Construct. Set	UI	Commodore 64	£14.95 Ariolasoft
Fig Forth	■	Amstrad	£24.95	Amsoft	Shaxx	Arc	MSX	£6.95 Kuma
Banana Man/Secret	Arc	BBC	£2.50	Blue Ribbon	Nightmare Maze	Arc	QL	£12.95 Shadow Games
Castle Assault	Arc	BBC	£2.50	Blue Ribbon	Quazimodo	Arc	QL	£12.95 Shadow Games
Games Disk	Arc	BBC	£9.95	Blue Ribbon	Cavern	UI	QL	£12.95 Sinclair
Munchy/Hangman	Arc	BBC	£2.50	Blue	Decision Maker	UI	QL	£12.95 Sinclair
Oman	Arc	BBC	£2.50	Blue Ribbon	Entrepreneur	UI	QL	£39.95 Sinclair
Adventure Con Set	Ad	Commodore 64	£14.95	Ariolasoft	Integrated Accounts	UI	QL	£89.95 Sinclair
Pinball Construct.	Arc	Commodore 64	£14.95	Ariolasoft	Monitor	UI	QL	£24.95 Sinclair
Seven Cities ■ Gold	Arc	Commodore 64	£14.95	Ariolasoft	Project Planner	UI	QL	£39.95 Sinclair
					Touch n Go	UI	QL	£24.95 Sinclair

Kill, it really is quite fun as you manoeuvre your rig around town, picking up various loads. No other traffic here (perhaps it's a Sunday) but there are traffic lights and stuff.

If there's a lorry driver in the family, then it's highly recommended. Otherwise, strictly for Yorkie fans.

Program Juggernaut

Price £7.95

Micro Spectrum 48K

Supplier CRL

9 Kings Yard
Carpenters Road
Stratford
London E15

top of screen by blasting one's way back up the screen.

So it goes, different screens have more difficult landing sites which involve negotiating your way down winding channels.

It's OK as a game but then it has been for centuries and there are zillions of other versions at least as good as this one. Utterly tedious and should be on a cheap label if anywhere. £7.95 is just silly.

Program Mayday

Price £7.95

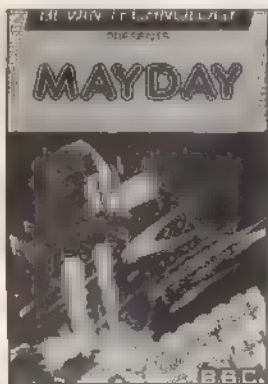
Micro BBC

Supplier Beavan

Technology
Gresham
Chambers
14 Lichfield Street
Wolverhampton
West Midlands
WV1 1DG

TEDIOUS

Mayday really is dreadful. The title may deceive, but what we have here is a version of boring old *Lunar Rescue*. For those too young to remember it, the game involves piloting a space shuttle down the screen dodging meteors, landing on a suitable landing pad and returning to the mothership at the



SINGLE STEP

Assembly Language Programming on your Commodore 64 is a combined Assembler package - one of several dozen.

There's nothing really all that special about this package except that it's just been released and it's relatively cheap at £18.95.

The Assembler accepts source code written in basic lines which can be edited using the normal text and screen facilities. Labels may be up to 75 characters long and the program is not fussy about hexadecimal or decimal numbers and how many spaces you leave between mnemonic and value.

The Disassembler also accepts hex or decimal and will

COMMODORE 64 MACHINE-CODE ASSEMBLER/ DISASSEMBLER



function continuously in pages or single steps.

Both parts of the package are about as easy to use as they can be and the Pseudo instructions acceptable to the Assembler may prove to be a godsend; for example, DFS lets you enter a character string at the current assembly address and could therefore save you hours on tiles and headings.

Program Machine Code

Assembler/

Disassembler

£16.95

Price

Micro

Supplier

Commodore
McGraw Hill
Book Company
Maidenhead
Berks

EXPLOSIVE

Grand Prix Rally II is a racing game for the Amstrad in the classic style - the rear view of the car and a road that is drawn into a point in the far horizon, giving an illusion of distance.

It's a standard computer

trick and how well it works depends on the effectiveness of the 3D scrolling effect - on the Amstrad it looks good, although the car is slightly wonky when turning sharp corners.

The car is operated simply by joystick left, right, forward makes you go faster - no gears to worry about. There are other cars on the track, so, as ever, the game is all about quick reactions: there's



a fairly effective explosion when things go wrong.

Interest in the game is maintained by a variety of driving conditions which affect the handling of the car and various sections of road where miscalculations on corners are fatal.

Program Grand Prix Rally II

Price £7.95

Micro Amstrad

Supplier Amsoft

Brentwood House
169 Kings Road
Essex
CM14 4EF

A Tangled Tale	Ad	Spectrum	£2.99	Central Sols
Crystal Quest	Ad	Spectrum	£2.99	Central Sols
Devils Deacent	Arc	Spectrum	£2.99	Central Sols
Mount Challenge	Arc	Spectrum	£2.40	Aasvoquelle
Talos	Arc	Spectrum	£7.95	Silversoft
Valley of the Dead	Arc	Spectrum	£2.99	Central Sols
Macadam Bumper	S	Spectrum	£7.95	PSS
Key: Ad - adventure S - strategy-simulation				
Arc - arcade Ut - Utility				
Ed - education				

Aasvoquelle, Blakemoor, Marshbrook, Church Stretton, Shropshire SY6 6QA, 05964 345. Amsoft, Brentwood House, 169 Kings

Road, Brentwood, Essex, 0277 230222. Ariolasoft, Retail, Blue Ribbon, Silver House, Silver Street, Doncaster, South Yorkshire DN1 1HL, 0302 21137. Cases Comp Sim, 14 Langton Way, Blackheath, London SE3 7TL, 01-858 0763. Central Solutions, 500 Chesham House, 150 Regent St, London W1R 5FA, 01-624 1389. Kuma, Kuma Computers, 12 Horseshoe park, Pangbourne, RG8 7JW, 07357 4335. McGraw Hill, McGraw Hill Book Company, Maidenhead, Berks. PSS, 452 Stony Stanton Road, Coventry, CV6 5DG, 0203 667556. Shadow Games, 70 Gooseacre, Cheddington, NEar Leighton Buzzard, Beds, 0296 668740. Silversoft, Studio 7D, Kings Yard, Carpenters Road, London E15 2HD, 01-985 5614. Sinclair, Stanhope Road, Camberley, Surrey, GU15 3PS, 0276 686100.

This Week



Monster creation

The story of Dr Weizenbaum has become fairly famous. He's the man who back in the mid-seventies put together some clever programming tricks to produce *Eliza*, the almost-human computer program which - like her namesake in George Bernard Shaw's *Pygmalion* - learnt to talk so well that you could hardly tell she wasn't the real thing.

Slightly disguised as *Doctor*, *Eliza* became a brilliant parody of a psychotherapist, responding to a patient's confessions with gently probing questions.

Dr Weizenbaum was immensely pleased with what he'd done - until he realised that everyone else was taking the program seriously. Learned journals were predicting the total computerisation of the psychiatric industry; students were secretly plugging in for hours of late-night conversation about their favourite topic - themselves. The last straw for Weizenbaum was when his secretary, who actually knew many of the little tricks that went into the program, asked him one day if he would leave the room so that she could consult the computer in private.

"But it's only a trick! I didn't mean this to happen!" howled the unhappy Weizenbaum to anyone who would listen, while the public (and some computer specialists who should have known better) continued to hail his program as a breakthrough in Artificial Intelligence.

Dr Weizenbaum's pain and remorse are amply apparent in his book *Computer Power and Human Reason*, published by Pelican (a reprint of the 1976 American edition, but with a new preface expressing disquiet about the moral values of video games). It's a striking book, with many interesting things to say about computers and their limitations. The Weizenbaum conclusion is that computers can do almost anything - except the things

that are actually important.

The main point he makes is about the enormous difference between the calculating powers of a computer and real intelligence, the human quality that comes not from electric currents activating logic gates but from the human experience - physical, moral, emotional, that machines can never know. Machine intelligence will never be more than a pale copy of limited aspects of human thought.

But some of Dr Weizenbaum's comments made me wonder. For example, he writes, "I had thought it essential, as a prerequisite to the very possibility that one person might help another to cope with his emotional problems, that the helper himself participate in the other's experience of those problems." This brought me up short as I thought of all those people who have been helped to cope with their problems by people they have never met - by authors of books and poems, for instance, that, sometimes very indirectly and in ways quite unintended, speak to their own condition.

Perhaps when writing was first invented, there were people as distrustful of the new medium as Dr Weizenbaum is of computer software. They could have pointed out all the subtleties that any written account must, by its nature, leave out. They would have worried that the relationship of author and reader could never quite be that of man meeting man in the flesh. Remote influence is nothing new. It's the basic condition of literature.

Perhaps computer awareness will have grown up when we realise that there is nothing magically different about a piece of computer software. It's just like a book, in that it has an author, who may be right or may be wrong, but either way is *responsible*, whether he likes it or not.

As for people misunderstanding you - that happens to authors all the time. And when were a writer's intentions a guide to the value of his work?

I'm afraid I can't resist a smile when I read of Dr Weizenbaum's horror when he glimpsed his creation reflected in the eyes of others.

But his creation it was - every byte of it determined by him. It's Baron Frankenstein who's the real monster, after all.

George Simmers

Four across

Puzzle No 169

In this crossnumber puzzle, numbers have to be filled in rather than words. Can you complete the puzzle and also determine the values of A, B, and C.



Across

1 B²

4 A*B

8 C²

Down

1 (A-B)²

2 (A-B)²

3 C

Solution to Puzzle No 165

Of the 2187 different possible combinations of cards, 343 of them will win and 1884 will lose.

```
10 LET MULT=0:LET NONMULT=0
20 FOR A=1 TO 13
30 FOR B=1 TO 13
40 FOR C=1 TO 13
50 LET S=A+B+C
60 LET P=A*B*C
70 IF P/S=INT(P/S) THEN MULT=MULT+1 ELSE
NONMULT=NONMULT+1
80 NEXT C
90 NEXT B
100 NEXT A
110 CLS:PRINT "WIN=";MULT;"LOSE=";NONMULT
120 END
```

The program uses three *For/Next* loops to generate each of the possible combinations of cards in turn. The sums and products of these cards are then calculated and if the product is an exact multiple of the sum, then the *Mult* variable is incremented by 1. Otherwise, the *Nonmult* variable is incremented.

After all combinations have been assessed, the result is displayed.

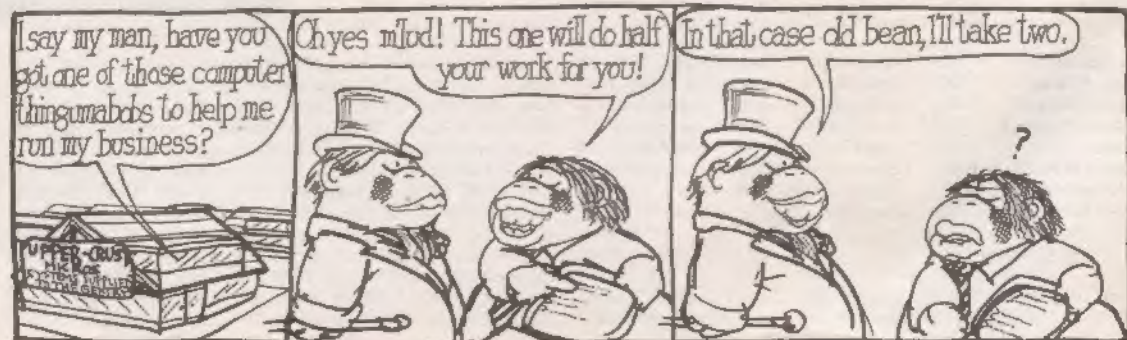
Winner of Puzzle No 165

The winner is Keith Simpson of Poole, Dorset, who receives £10.

Rules

The closing date for Puzzle No 169 is September 4.

The Hackers



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